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THE AUTOMOBILE

Uniform Automobile Laws in All States a Vital Necessity

Analysis of Various Statutes Now in Force Show Many Points of Difference That Prove Especially Annoying to the Tourist

Situation Now Ripe for Improvement Along These Lines, All That Is Needed Being Continued Agitation by Automobilists and Others Interested in Ameliorating the Present Conditions

SPEED the day when it will be possible to take an extended automobile tour in this country without having to worry about running up against the fifty-seven varieties of automobile legislation now in force in the different states in the Union! The automobile has been with us a goodly number of years now, but it seems as though the development of the legislative end of the industry has been completely left behind by the manufacturing side.

The situation is improving, it is true, slowly but surely, especially in the last 2 years, but it seems a pity that the majority of the commonwealths of this great nation should struggle along the path of progress under the handicap of primitive, inadequate and, generally, ineffective automobile laws. And, unless some action is taken in the matter, that is exactly what they will be forced to do until the majority of the legislators of the states have automobiles of their own, and then they may realize the extent of their self-sufficiency in attempting to lay down laws for something that they knew nothing about. Not that the automobile is the only thing that is legislated into an uncomfortable condition because of this, but it is, at least, a conspicuous example.

As things are now, each state is making out as best it can, taking a little, hesitant step forward now and then and perhaps managing, with the assistance of the automobile clubs and similar organizations, to let a little of the burden of cumbersome legislation slip from its shoulders. This, we are told, is progress; but how senseless it seems that our states, bound into a federal unit as they are, should be obliged by carelessness or lack of initiative of the men in office to fight their way along as individuals when it would take so short a time for their united strength to cast aside every obstacle to their arriving at the goal of perfect automobile regulation!

We all know the disadvantages of the present system of allowing each state to make its own automobile laws, without regard to those of any of the other states, whether they are near at hand or far away. In the East and North, of course, some attempts at uniform legislation have been made, especially in New England, but throughout the rest of the country no one seemed to care much whether the laws resembled those of any other state in the slightest degree. However, it is cheering to reflect that legislators are beginning to pay some attention to the automobilists' cry for uniform legislation throughout the whole United States, as they realize that a considerable proportion of the people have joined the ranks of the knights of the steering wheel.

Isn't it a great condition of affairs when Arizona, Colorado, Idaho, Kansas, Louisiana, Montana, New Mexico, Oklahoma and Wyoming have no automobile law at all, and when the law in Nevada amounts to about the same thing? How the Nevada lawmakers must have toiled and struggled, how they must have pondered, debated and discussed that little gem of automobile legislation that now adorns their statute books! The law runs thus:

The Ideal Automobile Law

1—Register with State Highway Department
2—Car, owner and chauffeur to be registered
3—Registration fee, 50 cents per horsepower (S. A. E.)
4—Registration emblems, certificate and two tags.
5—No driver's license required for owner and qualified members of immediate family
6—Chauffeur's license and badge required for professional drivers (annual fee, $5)
7—No operator or chauffeur to be under 18 years of age
8—Dealer's fee, $25 for one transferable license; duplicates, $5 each
9—Non-residents exempt from registration for 30 days in each year (not necessarily consecutive)
10—License year to extend from January 1 to December 31
11—Speed limit in open country, 30 miles per hour; in towns and cities, 15 miles per hour
12—Fine for exceeding speed limit, $5 to $100
13—Two white lights in front and one red light at rear

An Act Fixing and Regulating Licenses on Automobiles and Providing a Penalty for the Violation Thereof. The People of the State of Nevada represented in Senate and Assembly do enact as follows:—

SECTION 1.—From and after the passage of this Act, any person or persons, firm, company, corporation or association who keeps or uses automobiles of any description for hire or rent, shall obtain from the Sheriff of the County in which such business is transacted, a license for the transaction of such business and pay therefor the sum of two dollars and fifty cents ($2.50) per month.

SECTION 2.—Any person violating the provisions of this Act shall be guilty of a misdemeanor and punished by a fine of not less than twenty dollars ($20.00) nor more than one hundred dollars ($100.00), or by imprisonment in the County Jail for a term not exceeding sixty days.

But these states and territories which have no law at all, and even Nevada, are better off than a number of those which, having passed automobile laws a number of years ago, thought the matter settled and which are now miles behind the procession in that respect. The leading example of this state of affairs is Texas, which has a law that was passed in 1907 when automobiles were scarce, compared to what they are today. A glance at that law, which is given in the accompanying table of the laws of the various states digested into convenient form, serves to reveal its pitiful inadequacy to the needs of the biggest state in the Union, in which automobiles are rapidly becoming more and more numerous.

Some Amusing Provisions

Why, the very titles of the laws at present in force in several states, namely, Mississippi, Ohio, Kentucky, Georgia, Virginia, Indiana, South Carolina and the District of Columbia, point out the absolute ignorance of the men who drew them up and passed them regarding the automobile industry. What small boy of average American intelligence would dream of heading a law as these men did: An Act to Regulate the Running of Automobiles, Locomobiles, Autocars, etc.? Will some of these worthy legislators kindly tell us what is the difference between automobiles of other makes and those of the sort that have such suggestive names?

It would have done a large number of the legislators who drew up the automobile laws good to spend a little time in the study of diction and a little more time in getting things straightened out in their heads before venturing to commit them to paper. Some of the laws are regular books. Others are printed on a single small sheet. In Alabama, according to the law, all cars must be driven backward at night. The law states that: The rays of such rear lamp shall shine upon the number plate carried on the rear of such vehicle in such manner as to render the numerals thereon visible at least 50 feet *in* the direction *in* which the car is proceeding. Iowa and several other states use the same phraseology except that they avoid confusion by saying the direction *from* which the car is proceeding.

The Ohio law has an amusing provision (Section 12,616) which declares that anyone who fictitiously represents himself as a chauffeur may be suspended from the right

STATE	Register With	To Be Registered	Registration Fee	Certificates and Tags	Operators' Fee, Chauffeurs' Fee and Badge
Alabama	Secretary of State	Car and owner	$7.50 to $25	One tag	$5; Badge
Arkansas	Secretary of State	Car and owner	$5	Certificate, seal and tags	$1; Badge
California	Secretary of State	Car, owner and chauffeur	$2	Seal and tags	$2; Badge
Connecticut	Secretary of State	Car, owner and operator	.50 per H. P.	Certificate and tags	$2
Delaware	Secretary of State	Car, owner and operator	$5	Certificate and tags	$5
Districtof Columbia	Secretary Automobile Board	Car and operator	$2	Certificate and one tag	$2
Florida	Secretary of State	Car, owner and chauffeur	$2	Certificate and one tag	$2
Georgia	Secretary of State	Car and owner	$2	Seal and tags	No provision
Illinois	Secretary of State	Car, owner and chauffeur	$4 to $10	Certificate, seal and tags	$5; Badge
Indiana	Secretary of State	Car and owner	$1	Seal and tags	No provision
Iowa	Secretary of State	Car and owner	$15	Certificate and tags	No provision
Kentucky	Secretary of State	Car and owner	$5 to $20	Seal and tags	No provision
Maine	Secretary of State	Car and owner	$5 to $15	Seal and tags	$2
Maryland	Commissioner of Motor Vehicles	Car, owner and operator	$6 Trucks, $3	Certificate and tags	$2
Massachusetts	Highway Commissiun	Car, owner and operator	$5 to $25	Certificate and tags	$2
Michigan	Secretary of State	Car, owner and chauffeur	$3	Tags	$2; Badge
Minnesota	Secretary of State	Car, owner and chauffeur	$1.50	Tags	$2; Badge
Mississippi	State Auditor	Car and owner	$5 to $25	Tags	No provision
Missouri	Secretary of State	Car, owner and chauffeur	$2 to $12	Certificate and one tag	$1.50 Badge
Nebraska	Secretary of State	Car	$2	Tags	No provision
New Hampshire	Secretary of State	Car, owner and operator	$10 to $40	Certificate and tags	Operator, $3 Chauffeur, $5
New Jersey	Assistant Secretary of State	Car, owner and operator	$ 4.50 $15.00	Certificate and tags	$3 for 30 H. P.; $6 for over 30 H. P.
New York	Secretary of State	Car, owner and chauffeur	$5 to $25	Certificate and tags	$5; Badge
North Carolina	Secretary of State	Car and owner	$5	Seal and tags	No provision
North Dakota	Secretary of State	Car and owner	$3	Tags	No provision
Ohio	Secretary of State	Car, owner and chauffeur	$3 to $5	Certificate and tags	$2; Badge
Oregon	Secretary of State	Car, owner and chauffeur	$3 to $10	Tags	$2; Badge
Pennsylvania	Highway Department	Car, owner and chauffeur	$5 to $15	Certificate and tags	$2; Badge
Rhode Island	Highway Department	Car, owner and operator	$5 to $25	Certificate and tags	$1
South Carolina	County Clerk	Car and owner	$1	One tag	No provision
South Dakota	Secretary of State	Car and owner	$1	Seal and one tag	No provision
Tennessee	Secretary of State	Car and owner	$3	Certificate and one tag	No provision
Texas	County Clerk	Car and owner	.50	One tag	No provision
Utah	Secretary of State	Car, owner and chauffeur	$2	Seal and one tag	$2; Badge
Vermont	Secretary of State	Car, owner and operator	$1 per H. P.	Tags	$2; Badge
Virginia	Secretary of State	Car, owner, operator and chauf.	$5 to $20	Certificate and one tag	$2.50; Badge
Washington	Secretary of State	Car and owner	$2	One tag	No provision
West Virginia	State Auditor	Car, owner and chauffeur	No fee: Car is taxed	Tags	$2; Badge
Wisconsin	Secretary of State	Car and owner	$5	Certificate and tags	No provision

States and Territories with no automobile law—Arizona, Colorado, Idaho, Kansas, Louisiana, Montana, New Mexico, Oklahoma and Wyoming.

Minimum Age of Driver	Dealers' Fees	Exemption of Non-Residents	License Year	Speed Limit in Open Country, m.p.h.	Fine for Speeding	Lights
16	$100 Duplicates, $1	Reciprocal	Oct. 1 to Sept. 30	30	$25	Standard*
18	Register one of each type	Exempt	Jan. 1 to Dec. 31	20	Not over $100	Standard*
Not specified.	Register one car Duplicates, .50	Exempt	No provision	20	Not over $100	Standard†
18	$25	Exempt	Jan. 1 to Dec. 31	25	Not over $100	Standard*
16	$5 per car used	Reciprocal	Jan. 1 to Dec. 31	20	$10 to $25	Standard*
18	$2 transferable tag.	Reciprocal	No provision	20	$5 to $50	Standard*
Not specified.	No provision	30 days per yr.	No provision	Reasonable and proper.	Not over $100	Two white lights
16, unless one yr's epence.	No provision	30 days per yr.	No provision	Reasonable and proper.	Varies	One white front, one red rear
18	$5 Duplicates, $1	60 days per yr.	Jan. 1 to Dec. 31	25	$200	Standard*
Not specified.	$1 each type Duplicates, .50	Exempt	No provision	20	Not over $50.	No provision
15	$15 Duplicates, $1	Reciprocal	Jan. 1 to Dec. 31	25	Not over $100	Standard†
Not specified.	Register one car	Exempt	Year from date of issue	20	Varies	Standard†
16	$25	30 days per yr.	Jan. 1 to Dec. 31	25	$10 to $25	Standard*
16	$24 for 4 Duplicates, $6	Two periods of 7 days per yr.	Jan. 1 to Dec. 31	25	Not over $50.	Standard*
Operator, 16. Chauffeur, 18.	$25 for 5 Duplicates, $5	10 days per yr.	Jan. 1 to Dec. 31	20	$10 to $25	Standard*
18	$10 for 3 Duplicates, $2	Reciprocal	Jan. 1 to Dec. 31	25	Not over $25 and costs.	Standard*
Operator, 16. Chauffeur, 18.	$10 Duplicate, $1	30 days per yr.	Jan. 1 every 3d yr. to Dec. 31	25	Varies	Standard*
Not specified.	No provision	30 days per yr.	Annual Registration	Not specified.	Not specified.	No provision
18	$16 for 4 Duplicates, $1	19 days per yr.	Feb. 1 to Jan. 31	25	$25 to $100	Standard*
16	Register one car in each class.	30 days per yr.	Jan. 1 to Dec. 31	25	Not over $50.	Standard*
Operator, 16. Chauffeur, 18.	$40 for 4	10 days per yr.	Jan. 1 to Dec. 31	25	Not over $25.	Standard*
16	$5 per car used	Reciprocal	Jan. 1 to Dec. 31	25	Not over $100	Standard*
18	$15 Duplicates, $1	Reciprocal	Feb 1 to Jan. 31	30	Not over $100	Standard*
Not specified.	No provision	Exempt	July 1 to June 29	25	Not over $50 and costs.	Standard*
Not specified.	No provision	Exempt	No yearly registration	30	$10 to $50	Standard†
Not specified.	$10 Duplicates, $2	Exempt	Jan. 1 to Dec. 31	20	$25 to $50	Standard*
18	No provision	30 days per yr.	Jan. 1 to Dec. 31	25	Not over $50.	Standard†
18	$5	10 days per yr	Jan. 1 to Dec. 31	25	$10 to $25	Standard†
18	$50	10 days per yr.	Year from date of issue	25	Varies	Standard*
Not specified.	No provision	Not exempt	No yearly registration	15	$10 to $100	One white front, one red rear
Not specified.	No provision	Exempt	No yearly registration	20	Not over $25.	One white front, one red rear
Not specified.	No provision	Not exempt	No yearly registration	20	$25 to $100	No provision
Not specified.	No provision	Not exempt	No yearly registration	18	$5 to $100	One lamp
Not specified.	$2 each type Duplicate, .50	Exempt	No yearly registration	20	Varies	Standard*
Not specified.	$25	Reciprocal	Year from date of issue	25	Not over $50.	Standard*
Not specified.	$50	2 periods of 7 days ea. per yr.	Jan. 1 to Dec. 31	20	Not less than $10	Standard*
Not specified.	No provision	Exempt	June 1 to May 31	25	Not over $100	One white front, one red rear
Not specified.	No provision	Reciprocal	No yearly registration	20	Not over $100	Standard†
16	$5	Exempt	Jan. 1 to Dec. 31	25	$10 to $50	One white front, one red rear

* Two adequate white lights in front and one rear lamp showing red light.
† Same as above except that license numb ers must be shown in the lamps.

to operate a motor vehicle as a chauffeur for a period of 6 months. Georgia has a similar provision which states that no one under 16 years of age may drive a car unless "such minor shall have previously had 12 months' experience in the operation of automobiles."

In West Virginia and North Carolina the local authorities are given the right to exclude automobiles from cemeteries. What end this serves it is hard to guess as so many undertakers are adopting automobile hearses every day, having found them more quiet and tractable than horses for their work.

Virginia has an excellent provision in its law which authorizes the governor to confer and enter into agreement with the proper officials of other states as to uniformity in automobile laws.

New Jersey has one provision which deserves to be adopted by every state in the Union without further ado. It requires that every horse-drawn vehicle shall carry a light after dark.

The table herewith makes a comparison of the state laws a simple matter. In making up this table the twelve most important points of automobile legislation were covered; the others, such as rules of the road, etc., being very much the same in the different states. If only the same uniformity had been attained in the things that really matter.

Many Points of Difference

An analysis of the table brings out more forcibly the differences that exist in each respect in the different states. Although all of them have some points in common with other states and thus fall into groups under the various headings, the groups are always composed of different combinations, that is to say, that, if a number of states have the same law in one respect, at least part of them will differ from the rest under the other headings. Generally, with the exception of the New England States, they form entirely different combinations in the different groups.

As regards the department of the state organization which has charge of the registration of automobiles, the states which require registration, thirty-nine in number, are much more uniform than in any of the other respects. Thirty-one of them designate the secretary of state as the person under whose authority this detail of administration belongs. Two states have placed this work in the hands of the county clerks, two in charge of the state auditor and two have assigned it to the highway commissioners. One of the remaining two appoints a motor vehicle commissioner and the other makes the assistant secretary of state the motor vehicle commissioner *ex-officio*.

Upon consideration, it seems hardly fitting that the registration of automobiles should be saddled upon the secretary of state. In most of the states this necessitates the establishment of an automobile department and more or less red tape besides taking up the time of the secretary

Some of the legislators should have studied phraseology

of state in a needless manner. In spite of the fact that so many of the states have adopted this system, it would be much better if they all followed the example of Pennsylvania and put this work where it properly belongs, the state highway commission, and under the supervision of the secretary of state. The fees paid in by automobile owners and drivers are used in nearly all of the states for the purpose of improving the roads and why not pay them direct to the highway commission and do away with the present more or less roundabout method of handling them?

In the next point to be considered, there is a marked difference. There is only one state in which it is deemed sufficint to register the car alone, and only one in which it is necessary to register the car, owner, operator and chauffeur, the difference between an operator and a chauffeur being that an operator is not a professional driver, while a chauffeur is. Eight states specify that the car, owner and operator must be registered and declare that registration of the car, owner and chauffeur is necessary to comply with the law. The other sixteen are satisfied with the registration of the car and owner.

Chauffeurs to Be Considered

It is noteworthy that most of the states leave the chauffeurs out of the reckoning entirely in this particular, but that the next largest group, that of the thirteen states, requires the registration of the car, owner and chauffeur. This seems the most sensible way as the chauffeurs are numerous and are growing more so every day as the many automobile schools a'l over the country are turning them out wholesale.

The greatest diversity of all exists in respect to the registration fees. The lowest is that required by Texas which, though its licenses are perpetual according to the present law, exacts only 50 cents from the car owner and allows chauffeurs to operate without the payment of a fee and without even registering. The highest is $1 per horsepower as charged by Vermont, New Hampshire being a close second with $40 for every automobile of 60 horsepower or more. In West Virginia there is no registration fee as automobiles are assessed as taxable property. The average fee for the entire country, however, is rather low, for if your car is small enough, that is, if your horsepower is small enough, you can register it in thirty-four of the states for $5 or less per state. But if you have a big car it is a different matter. Vermont, like one or two other states, makes up for its big initial fee by giving a reduction of 75 per cent. on re-registration. This seems a needless complication.

In view of the great diversity of opinion in the different states as to the value of licenses, as indicated by the fees chargd, it seems that the happy medium would be an annual charge of 50 cents per horsepower according to the S. A. E. rating. Fifteen of the states have already adopted the system of basing the fees on the horsepower of the car, but their rates per horsepower are radically different, most of them contenting themselves with dividing the cars into classes, as 10 to 20 horsepower, so much; 20 to 30 horsepower, so much, etc.

The matter of registration emblems, while not so important as that of fees, is nevertheless of some moment. At the present time there is not the least sign of uniformity in this respect. Four states require the use of only one tag or number plate. Eight states specify two tags, one for the front of the car and one for the rear. Five make a single tag and a certificate necessary and twelve others require two tags besides the certificate. Some states have seals, generally of metal, to be attached to the car. Of these, two specify the seal and a single tag, six require the seal and two tags, and two demand the seal, a certificate and two tags.

The ideal arrangement in this particular would seem to be the certificate and two tags combination. A seal is not really necessary and would serve no useful end as, in case of theft of the car, it would be removed at once.

There is one important point upon which the laws of most of the states are either vague or at fault. This is the lack of distinction between the operator of a car and a professional chauffeur in the matter of licenses to drive. It seems like an imposition on the car owner to make him license himself to drive the car and to exact a fee after he has paid the registration fee. Moreover, the payment of the registration fee should give the right to drive the car without further license not only to the owner, but also to the members of his immediate family who have his permission. Virginia makes this provision.

Dealers' Fees Differ Greatly

In fourteen states there is no provision for chauffeurs. In the other states the fees range from $1 to $6, the last figure being the New Jersey fee for a license to drive a car of over 30 horsepower. Some of the states require chauffeurs to wear a badge, while others do not.

The license to operate a car of any sort should be worth $5 a year to a chauffeur. He should be examined as to his fitness to drive before a license is issued to him and no license should be issued to a chauffeur who is not qualified to drive. All chauffeurs should wear a distinguishing badge when operating a car. The minimum age for both chauffeurs and operators should be 18 years.

The provisions regarding the registration of dealers and manufacturers differ very much in the various laws. Registration costs least in the District of Columbia, where a transferable license tag is given for the sum of $2. In decided contrast to this are the statutes of some states which levy a heavy tax on the dealer in, and manufacturer of, automobiles. Alabama is the worst of these, charging $100 for a dealer's license and $1 for each duplicate set of tags. Some states have a flat rate of $25

In some states automobiles may be excluded from cemeteries

or $50, while others require different sums for varying numbers of number plates. Delaware and New Jersey charge $5 per car used. The remaining states stipulate that the dealer or manufacturer shall register one car of each type which he handles or makes. Generally the type refers to the manner of propulsion—gasoline, steam or electricity.

These arrangements are mostly of an unsatisfactory nature and it would be very easy for the states to adopt a uniform regulation which would render the situation much simpler and, consequently, much better. The happy medium in this particular would be an annual fee of $25 for each dealer and manufacturer, the license tags or number plates to be transferable so that in case of the sale of a car the license might be transferred to another. If the dealer required more than one set of number plates he could get duplicates on the payment of a fee of $5.

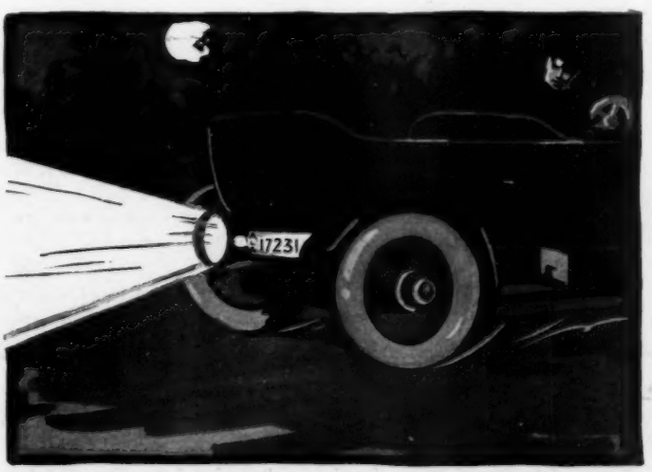
One of the most important things of all is the question of what should be done about the non-resident car owners and chauffeurs who tour from state to state on business or pleasure. As things are now, the lack of uniformity in automobile legislation makes a great deal of trouble, worry and discomfort for most of them. Reciprocity is gaining, nine states having reciprocal regulations today, while seven allow non-residents to remain within their borders 30 days in each year without requiring them to take out licenses. Four states give 10 days in a year, two give two periods of 7 days each, Missouri gives 19 days and Illinois gives 60 days. Twelve states exempt non-residents, who are registered at home, without further comment and only three, one of which is Texas, do not exempt them from registration.

Speed Limit Should Not Vary

Improvement has been more promising in this respect than in most of those covered by the automobile laws, but it is desirable that all states should adopt the same provisions and that these provisions should be fairly liberal. For instance, every state should allow the automobilists of other states who are registered at home at least 30 days within its borders without requiring registration. Illinois is especially generous in this, and perhaps 60 days would be better than 30. The rule should apply to owners, operators and chauffeurs.

There is a considerable difference in the license year in the various states. That is, the time during which the license shall run. Seven states have no provision for yearly registration whatever, Minnesota requires registration only once every 3 years, and the others all have annual registration, seventeen specifying that the license year shall run from January 1 to December 31, inclusive.

Under present conditions it is very difficult to keep track of the registration in the different states on account of the different license years and there are many other drawbacks. Everything considered, it would be much better if all the states should follow the example of the seventeen and make the license year January 1 to December 31.



Alabama's light law apparently necessitates backing at night

Virginia's law provides that governors may confer on legislation

The speed limit is important. At present eighteen states have a speed limit of 25 miles an hour, thirteen make it 20 miles an hour, South Carolina makes it 15 miles, Texas makes it 18, and Alabama, New York and North Dakota make it 30 miles an hour. Florida and Georgia simply state that the speed shall not be in excess of what is reasonable and proper, and Mississippi fails to set a limit.

It seems ridiculous to set a speed limit of 15 or 20 miles an hour as such a limit is seldom, if ever, regarded, except when a policeman may be watching. This, of course, refers to driving in the open country. In the city 15 miles an hour is a liberal speed limit. But it isn't human nature to be satisfied with 15 or 20 miles an hour when the road is good, the day fine and the car running smoothly. But 30 miles an hour is the ideal speed limit for country driving. There is no use in exceeding so liberal a rate and the automobilist does not feel that irksome sensation of unjust restraint which pervades his being under a 15 or 20-mile an hour law. The law should provide that, at all times, automobiles must be operated in a careful manner and that a charge of reckless driving, punishable by a heavy fine, might be preferred against offenders. There should be no local laws.

Some Uniformity in Light Laws

The fines for exceeding the speed limit vary from $5 to $50 for the first offense to $200. The second and third offenses entail more severe penalties and, in many of the states, a third offence is likely to cause the cancellation of the offender's license. The ideal penalty for exceeding the speed limit is not easy to decide, as so much depends on circumstances in questions of speeding, but a fine of from $5 to $100 for the first offence would do very well. The fine for the second offence should be from $25 to $200, and the third offence should entail the suspension or cancellation of the offender's license.

There is a tendency toward uniformity in the regulation of lights in the various states. Twenty-two specify two white lights in front and a red light in the rear, and seven others require the same with the additional feature of number figures inserted in side or painted on the glass of the lamps.

The equipment adopted by the twenty-two states and designated Standard in the table of laws seems eminently satisfactory and should be taken up by the other states. The use of figures in the lamps is needless and, consequently, should not be required.

Recapitulating, we find that we have the ideal automobile law as summarized on the first page of this article. It covers the important features of automobile legislation upon which all the states should agree. The states would work out the minor details by themselves.

Legal News of the Week

Court Decides Maxwell-Briscoe Infringed Carlson Patent Rights—Defendant Says Device Has Been Abandoned

Injunction Granted Against Striking Aluminum Molders —Another Weed Suit

CONFIRMING the opinion of the lower court, the United States Circuit Court of Appeals has handed down an opinion in the suit of the Carlson Motor and Truck Company against the Maxwell-Briscoe Motor Company, adjudging the Carlson patent, 797,555 to be valid and infringed by the defendant company.

The opinion grants an injunction, accounting and damages to be included in the interlocutory decree.

The matter at issue is included in claim 1 of the Carlson patent, which was granted August 22, 1905, and still has over 10 years to run. The claim reads as follows:

"In an internal-combustion engine, the combination with a hollow casing, opposed cylinders secured thereto, and inlet and exhaust valves mounted in a part stationary with said cylinders, of a removable cover-plate for said casing, a cam-shaft mounted in said cover-plate, and cam-followers also mounted in said cover-plate and removable therewith, said cam-followers arranged to engage and operate said valves."

This type of engine was used by the defendant company for one or more of its models equipped with double-opposed horizontal cylinders and thus became a party to the action. According to Edmonds & Edmonds, solicitors for the Maxwell-Briscoe Company, the infringing device has been abandoned by that concern and has not been put out in its cars for a long time.

The history of the case goes back to 1907, when the original suit was filed. This was heard in April, 1910, before Judge Hazel of the United States District Court, who held in favor of the patent. Later the case was re-opened and re-argued with the same result. Appeal was then taken by the Maxwell-Briscoe concern to the court of last resort in patent cases, the United States Circuit Court of Appeals. The decision of the United States Circuit Court of Appeals will probably be regarded as final unless some question of constitutionality or conflict in opinion between the present holding and the decision of other circuits shall be raised.

The device covered by the patent is in effect a cover-plate for a gasoline engine, containing the valve-actuating mechanism and housings in such form that they may be easily removed without taking down the body of the engine.

It has been adopted by several manufacturers of commercial wagons under license and the Carlson company plans a wide expansion of use now that the patent has been adjudicated as valid.

E. W. Marshall, associated with Livingston Gifford, presented the case before the various courts.

The defenses were anticipation and non-infringement.

Judges Lacombe, Coxe and Ward heard the case and Judge Coxe wrote the opinion of the court. In part this was as follows:

> The patent in controversy was granted to Charles A. Carlson August 22, 1905, for improvements in internal combustion engines and relates particularly to the four-cycle multicylinder type. It consists in novel features whereby the working parts are readily accessible and in means whereby access may be had to the valves and valve operating mechanism for each of the cylinders, independently of the cylinder devices in connection with other cylinders. It also consists in a novel construction, arrangement and location of the valves and their operating mechanism. The principal objects of the invention are to secure simplicity, compactness and rigidity of construction of the various parts. The patentee also insists that his improvement reduces the weight and size of the parts and makes them readily accessible when it is necessary for the operator to reach them.
>
> The engine illustrated and described has four cylinders, but the patentee points out that the invention may be employed where more or less than four cylinders are employed.

The court then goes on to describe in detail the elements of the claim at issue. Continuing, the opinion says: "The patentable feature of Carlson's contribution to the art was the readily removable cover-plate with its moving parts."

The court then proceeds to review the Duryea, Walrath, Maxim and Young & Murray patents set forth by the defense and comments upon the fact that the last three named were not fully pleaded in the original hearing, which was prior to the time Edmonds & Edmonds assumed charge of the case. Judge Coxe points out the vital differences between the devices pleaded and the Carlson engine. In conclusion the court states:

> The invention of Carlson is not fundamental. It deals with matters of minor importance and must be limited to the structure shown, but on the other hand it has accomplished an important result in the art to which it refers and he is entitled to the benefits thus secured. If it be no better than the structure upon which the defendant relies, it can use those structures with impunity, so far as the complainant is concerned. If, on the other hand, Carlson has made an invention, even though it be of minor importance, he is entitled to protection.
>
> There can be little doubt as to the defendant's infringement. That the defendant's structure was within the first claim of the Carlson patent was in effect admitted in the interference proceeding. It would be ignoring the essence of the invention to construe the cover shown in photograph 2 as the removable cover-plate of the claim, for said plate is a cover, pure and simple, having nothing mounted therein. The question is not one of nomenclature but of mechanics and relates not to the names given to the parts of the combination but to the various functions they perform.
>
> The removable plate in which the camshaft and followers are mounted performs its functions whether its top be closed or not. One who uses the combination, whether the top cover be on or off, infringes the claim.
>
> Having in mind the distinction just referred to, it will be found that every element of the claim is found in defendant's engine, combined as in the Carlson engine.

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Injunction Against Striking Molders

BUFFALO, N. Y., May 7—Judge Hazel in United States district court has granted an injunction restraining Local 84, International Molders' Union of North America and its members from interfering with the operation of the Aluminum Castings Company, which makes aluminum castings for local automobile factories, and at which plant there has been for 3 weeks a strike of molders and coremakers.

The injunction was issued upon the application of officers of the local company and Deputy United States Marshals Doty and Conkling served the orders to the union.

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Two More Weed Infringement Suits

Suits have been filed by the Weed Tire Chain Grip Company against Charles Weiland and the 35 Per Cent. Automobile Supply Company, for alleged infringement of the Parsons Non-Skid Company's basic patent on tire chains. The suits were commenced in the United States District Court and are similar to the 200 or more suits on the Parsons patent that have been prosecuted by the Weed company to date.

—

Appeal from Leather Strip Decision

WASHINGTON, D. C., May 6—The treasury department at Washington has directed an appeal from the recent decision of the board of general appraisers as to the duty on leather strips for motor car treads. The appeal has been filed with the court of customs appeals. It appears that the articles come in lengths suitable for making the treads in tires; that they are beveled and that no further labor is necessary to adapt them to their special use except that they are filled with studs to prevent slipping. Duty was assessed upon the merchandise under paragraph 452 of the tariff act at the rate of 40 per cent. ad valorem, and the board sustained the protest of the importers that it was properly dutiable under paragraph 451 of said act, at the rate of 5 per cent. ad valorem and 10 per cent. ad valorem under the first and last provisions of the said paragraph.

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Hess-Bright vs. Fichtel & Sachs

Answer has been filed in the United States District Court, Eastern District of Pennsylvania, in the suit of the Hess-Bright Manufacturing Company, *et al*, against Fichtel & Sachs. The

answer was submitted by William A. Redding and Julian C. Dowell. The suit involves the validity of patent 822,723, granted to Robert Conrad in June, 1906, for a type of ball bearings, and patent 838,303, covering certain other elements in ball bearings. These patents were assigned to the Hess-Bright company in 1910.

The patents were held to be valid in an action before Judge Holland in 1910, particularly with regard to four of the claims. In this suit the Standard Roller Bearing Company was defendant, and an injunction, accounting and damages were awarded by the court.

The answer sets up all the formal defenses appropriate in patent litigation and denies infringement of the patents in issue. The defense alleges that the Conrad patents are not original in their field and cites eighty-seven American, British and German patents which are alleged to antedate those in suit, particularly setting up patent 796,871, based upon German patent 151,483, granted to Fichtel & Sachs in 1904, in Germany and in August, 1905, in the United States.

The claim is made that the defense is manufacturing under that patent all the ball bearings sold by the firm in the United States.

Drawback Allowed on Tire Treads

WASHINGTON, D. C., May 6—Drawback has been allowed by the federal treasury department under section 25 of the tariff act on tire treads known as Woodworth treads, manufactured by the Leather Tire Goods Company, of Buffalo, N. Y. The regulations prescribe the allowance of drawback shall not exceed the number of rivets shown in the sworn schedule of the manufacturer, filed with the collector of customs at New York.

The regulations dated October 22, 1906, providing for the allowance of drawback on motor cars manufactured by the Peerless Motor Car Company, of Cleveland, with the use of imported castings, ball bearings, spark-plugs and other imported parts and materials, have been amended to cover motor cars and motor trucks manufactured by this company with the use of imported bearings, in accordance with its sworn statement, filed with the collector of customs at Cleveland.

Gives Damages for Dog Victims

LOUISVILLE, KY., May 7—A novel law will become effective in Kentucky, June 15, which will be of interest to motorists, as it makes it possible for persons having dogs injured by automobilists to institute suits for damages, in civil actions, against the owners of the offending cars. The bill was backed by the Kentucky Humane Society, which has sent out word that it will assist anyone having such a claim in prosecuting suits.

Atlas Appeal to Be Argued May 20

Argument in the appeal of the Atlas Chain Company against the ruling of court in the proceedings brought by the Weed Chain Tire Grip Company will be made before the United States Circuit Court of Appeals May 20. The case has been carried up on a law point involving the order of court issued by Judge Lacombe enjoining the Atlas company from making and selling chains that infringe the Parsons patents.

Asks $50,000 Damages from Velie

MOLINE, ILL., May 6—Suit asking for $50,000 damages has been filed against the Velie Motor Vehicle Company, in the circuit court of Rock Island county. The plaintiff, Helge W. Amundsen, alleges that while testing a gasoline engine he slipped on a greasy floor and fell in such a manner that his hand was caught in the engine he was testing, causing the loss of three fingers and other injuries.

Sager Defeats Grossman

Decision Against Latter for Infringement of Patent for Improved Type of Automobile Buffer

Defendant's Lawyers Argued That Device Was Adaption Rather Than Patent

IN the suit instituted in the United States District Court, Southern District of New York, by J. H. Sager & Company, against Emil Grossman Company for infringement of the Sager patent 885,181 covering an improved type of automobile buffer, the plaintiff company prevailed.

Judge Charles M. Hough wrote the opinion, which upholds the validity of the Sager patent and grants the usual form of injunction against the defendant. The patent in suit was granted April 21, 1908, and consequently has almost 13 years to run. The chief claims alleged in the action were those numbered 6 and 7 of the patent and are as follows:

"In an automobile buffer, a horizontal buffer rod, lever means attached to said rod and pivoted to the frame of the automobile and connecting them in a line at an angle to the line of motion of the automobile from the pivotal axis to the point of attachment of said lever to said rod, and a spring put under stress by movement of the lever around its pivotal axis.

"In an automobile buffer, a horizontal buffer rod, lever means attached to said rod and pivoted to the frame of the automobile and connecting them in a line at an angle to the line of motion of the automobile from the pivotal axis to the point of attachment of said lever to said rod, a spring put under stress by movement of the lever around its pivotal axis, and a support for said spring attached to said automobile and in convenient proximity to said lever."

According to the opinion of the court the judgment on the validity of the patent was reached with much reluctance because of the fact that the device in suit appeared to the court to be a combination and adaptation of principles well known to the automobile art or similar arts, rather than a pure invention.

The nominal defendant, Emil Grossman Company, was not active in the defense. C. Schuyler Davis represented Sager and James R. Offield, of Chicago, representing the United States Bumper Company of that city, was the leading attorney for the defense.

The chief point raised by the defense, with numerous citations and decisions to uphold it, was that a principle in use for years in a similar field properly belongs to an adaptation used in some affiliated field. The examples cited were those of street-car bumpers containing a number of principles that are alleged to be included in the Sager device. The court held that these were insufficient to overcome the presumption of prima facie validity which followed the issuance of a patent by the government.

More Individual Dyer Licenses

Three suits entered by the Enterprize Automobile Company against users of cars embodying alleged infringements of the Dyer patents were dismissed or modified by the granting of licenses to individuals to operate the cars in question. These suits were as follows: Henry Bishop, Isotta; Louis Pittsburg, Sultan, and J. Comiskey, Sultan. Individual licenses were granted to the following without recourse to the courts: Louis A. Ripley, DeDietrich; O. A. Isaacs, Darracq; Windsor Land and Improvement Company, Chadwick.

The Windsor company's action was voluntary. The novel feature in the proceedings was the inclusion of a Chadwick car in the list licensed under the Dyer patent.

Flanders Metzger Manager

New Deal Puts Paul Smith, Another Studebakerite, in the Metzger Vice-Presidency

Capital Stock to Be Increased from $1,000,000 to $3,000,000

DETROIT, MICH., May 6—It is rumored Walter E. Flanders has switched from the Studebaker Corporation to the Metzger Motor Car Company, the Studebakers having accepted Mr. Flanders' resignation as general manager. He has sold all of his Studebaker stock, and today it was announced that his new title is that of general manager of the Metzger company. Thus has been brought together again that old triumvirate, W. E. Metzger, B. F. Everitt and Walter E. Flanders.

Another surprising bit of news in this connection is that there has been a general reorganization which has added new capital and has brought about changes in the personnel of the company. The first the public knew of this was when the announcement was made that Paul Smith, sales manager of the Studebaker Corporation, had been secured for the position of vice-president and director of sales of the Metzger company and that along with him came new capital, mostly of a big holder of stock in the Metzger company. This infusion of new blood, of course, brought about other changes. Harry Bill, who has been general manager, hereafter will be factory manager, while Wallace Hood will retain the title of sales manager. W. E. Metzger, who has been secretary-treasurer, will remain secretary, but some one who is not financially interested in the company, and who has not been selected as yet, will be appointed treasurer. It also has been decided to increase the directorate from five to seven.

Following a meeting of the new and old interests today it was announced that the capital stock of the company has been increased from $1,000,000 to $3,000,000, all of which has been subscribed, $2,250,000 being common and $750,000 preferred. The Metzger company also has decided to have two plants, one to be devoted solely to the manufacture of six-cylinder cars and the other to those of the four-cylinder type. It has been settled that the six factory will be the present plant of the company in Detroit; the other will be located in some city not yet announced.

"No Yearly Models" a Success

SYRACUSE, N. Y., May 4—The H. H. Franklin Manufacturing Company reports that the change in system by which, instead of having annual types of cars and annual announcements regarding them, they build in series with the idea of continuous improvement without break, implied or actual, is proving most successful with the dealers and the buying public.

Last year the concern made this departure, and figured that by so doing they would confer a distinct advantage to the dealer in his selling plans, and this, it is claimed, is precisely what has occurred. It is stated that the plan has effectually stopped the trend of sales being held up in the spring through anticipation of dealers and prospects of something radically new. The present policy is to make improvements continuous. Series G is now upon the market, in all types, and this will be renewed in June, according to present plans.

Buffalo Electric Elects Directors

BUFFALO, N. Y., May 7—The Buffalo Electric Vehicle Company, the $1,000,000 automobile organization, which was recently incorporated here, elected directors at a special meeting held last Friday afternoon. The board of directors of the new industry consists of Samuel J. Dark, president; A. A. Landon, vice-president; W. A. Morgan, vice-president; Harry Yates, treasurer; Alfred W. Thorn, secretary; Hon. Jacob Amos, Frank L. Bapst, Laurens Euos, Howard A. Forman, O. E. Foster, Henry D. Knox, Frederick F. Klinck, William H. Kinch, Moses Shire, Harry Thorp Vars, John W. Van Allen and John T. Steele. John W. Van Allen has also been selected as the corporation's attorney.

During the past week the new concern began the sale of $50,000 7 per cent. cumulative, convertible, preferred stock, this amount being the preferred stock which remained unsold until the opening of the public subscription. The stock is being sold at $100 per share and accrued dividend, with 25 per cent. bonus of common stock in trustees' certificates. In buying subscriptions, 40 per cent. is required in cash and the balance in 20 per cent. installments.

Marion Capital $1,125,000

TOLEDO, O., May 6—The newly-formed Marion Motor Car Company, of Indianapolis, will have a capitalization of $1,125,000, an increase from $100,000. The issues will be divided into $650,000 common and $500,000 preferred.

Arrangements are being made for another large plant in addition to the equipment now possessed by the company at Indianapolis. Production will be much increased and the scope of the factory will be enlarged.

Market Changes for the Week

Changes of quotations in the materials market the past week were small and few. Steel continued active and strong, while copper suffered by a restriction of activity and consequently fell slightly. Lead and tin, which had advanced during the previous week, fell off somewhat, the decline in tin being especially sharp. Oils and lubricants remained unchanged since the 1 1-2 cents advance of gasoline on Wednesday last.

Crude rubber maintained a steady level throughout the week in the markets of the world, the price basis being equal to $1.11 a pound at New York for up-river fine. Trade was exceedingly quiet, no sales of large size being made. The April receipts at Maneos were 2,715 tons, which is 500 tons greater than last year during the corresponding month. At Para the April receipts amounted to 3,325 tons, 400 tons less than in April, 1911.

Material	Wed.	Thurs.	Fri.	Sat.	Mon.	Tues.	Week's Change
Antimony, per lb.....	.06½	.06½	.06½	.06½	.06½	.06½	.....
Beams & Channels, 100 lbs..	1.36½	1.36½	1.36½	1.36½	1.36½	1.36½	.....
Bessemer Steel, Pittsburgh, ton	20.00	20.00	20.00	20.00	20.00	20.00	.....
Copper, Elect, lb.....	.15⅝	.15⅝	.15 7/10	.15 7/10	.15 7/10	.15 7/10	—.00 1/10
Copper, Lake, lb.....	15 9/10	.15⅞	.15⅞	.15⅞	.15⅞	.15⅞	—.00 1/40
Cottonseed Oil, May, bbl.....	7.16	7.29	7.39	7.39	7.50	7.44	+.28
Cyanide Potash, lb.	.20	.20	.20	.20	.20	.20	.....
Fish Oil, (Menhaden) .	.40	.40	.40	.40	.40	.40	.....
Gasoline, Auto, 200 gals. @..	.18½	.18½	.18½	.18½	.18½	.18½	.....
Lard Oil, prime	.85	.85	.85	.85	.85	.85	.....
Lead, 100 lbs...	4.17½	4.15	4.15	4.15	4.15	4.12½	—.05
Linseed Oil....	.75	.75	.75	.75	.75	.75	.....
Open-hearth Steel, ton....	20.50	20.50	20.50	20.50	20.50	20.50	.....
Petroleum, bbl., Kansas crude.	.64	.64	.64	.64	.64	.64	.....
Petroleum, bbl., Pa., crude....	1.55	1.55	1.55	1.55	1.55	1.55	.....
Rape Seed Oil, refined	.68	.68	.68	.68	.68	.68	.....
Rubber, Fine Up-River Para..	1.11	1.11	1.11	1.11	1.11	1.11	.....
Silk, raw Ital..	....	4.15	....	....	....	4.40	+.25
Silk, raw Japan	....	3.65	....	....	....	3.67½	+.02½
Sulphuric Acid, 60 Beaumé...	.99	.99	.99	.99	.99	.99	.....
Tin, 100 lbs...	46.15	46.15	45.62½	45.62½	45.00	45.55	—.50
Tire Scrap, lb.	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.....

The personnel of the executive and administrative staffs will probably be announced within 2 weeks. John I. Handley, president, has been recruiting for several weeks past.

As announced in these columns there will be no official connection between the Overland, Marion and American Motors Company.

Approve Van-L Reorganization

GRAND RAPIDS, MICH., May 4—Backed by the recommendation of the Grand Rapids Association of Commerce, the Central West Improvement Association has put the stamp of approval on the proposed reorganization of the Van-L Commercial Car Company. At present the assets of the company are $10,892 and the liabilities $11,918. Articles of incorporation under the plan of reorganization have been filed and the new company, which will be known as the Commercial Service Truck Company, has been capitalized at $170,000, of which $100,000 is common and $70,000 preferred stock. It is proposed under the reorganization plans to sell $17,000 worth of stock in $500 blocks. The outstanding debts and first expense of starting will be $6,000, leaving $11,000. In addition there are nine cars in the factory nearly completed. When finished these can be sold for $12,000, which amount will be added to the treasury. It is proposed to make two trucks a week for the first year or two. At a net profit of $300 a truck the yearly profit would be $30,000. Only preferred stock will be sold, common stock being given as a bonus.

Automobile Securities Quotations

The money market was easy during the week, with little activity either way. Call money ranged about 2 3-4 per cent. Stocks of automobile and kindred manufactures suffered a general decline of from 1 to 3 points. The developments in tire stocks proved of great interest, there being two groups of increasing and decreasing quotations respectively. The price of Goodyear, Goodrich, Consolidated Tire and Miller Rubber advanced a point or two, while Firestone and Diamond Rubber declined noticeably, the latter recovering on Tuesday, but closing 8 points below last Tuesday's quotation. The changes in the tire and rubber stocks are independent of those in the rubber market, which was inactive.

The following quotations on those automobile securities which were most active during the past week in New York and other commercial centers, indicate the situation on May 7:

Name of company	Capital	Par	Rate	Dividends payable when	Quotations May 7, 1912 bid	asked
Ajax-Grieb, com.	$450,000	100	12	M. Jan. 5	115	125
Ajax-Grieb, pfd.	250,000	100	7	S.A. Mar. 5	95	100
Alum. Cast., pfd	.....	100	*	.....	100	...
Am. Loco., com	25,000,000	100	7	Q. Jan. 21	42	42½
Am. Loco., pfd.	25,000,000	100	7	.....	109	109¾
Chalmers Motor	3,000,000	100	5	Q.	140	155
Cons. Rub. Tire, com.	4,000,000	100	*	.....	9	9½
Cons. Rub. Tire, pfd.	1,149,500	100	*	.....	40	...
Diamond Rubber	10,000,000	100	14	Q. Jan. 20	375	380
Firestone T. & R., com.	3,000,000	100	7	Q. Jan.	265	268
Firestone T. & R., pfd.	1,000,000	100	7	Q. Jan. 15	108	110
Garford Co., pfd	.....	100	*	.....	98	100
General Motors, com.	15,822,330	100	*	.....	32½	34
General Motors, pfd.	14,393,000	100	7	S.A. May 1	73	75
B. F. Goodrich, com.	30,000,000	100	4	Q. Jan.	80	81
B. F. Goodrich, pfd.	15,000,000	100	7	Q. Jan	106	106¾
Goodyear T. & R., com.	10,000,000	100	12	.....	240	242
Goodyear T. & R., pfd.	25,000,000	100	7	Q. Jan.	105	106
Hayes Mfg. Co.	.....	100	*	.....	...	102
Intern'l Motor Tr., com.	5,000,000	100	*	.....	33	35
Intern'l Motor Tr., pfd.	3,600,000	100	7	Q. Jan.	93	96
Lozier Motor Co.	.....	100	various	.....	40	60
Miller Rubber Co.	.....	100	*	.....	162	165
Packard Motor, pfd.	5,000,000	100	7	Q. Mar. 15	105	106
Peerless Motor	1,202,400	100	*	.....	160	170
Pope Mfg. Co., com.	3,690,808	100	1	Jan. 31, '12	35	37
Pope Mfg. Co., pfd.	2,192,202	100	6	Q. Feb. 1	75½	76½
Reo Motor Truck Co.	.....	10	*	.....	8	10
Reo Motor Car Co.	2,000,000	10	various	Feb. Q	23½	25½
Rub. Goods Mfg., com.	16,941,700	100	7	.....	90	...
Rub. Goods Mfg., pfd.	10,351,400	100	various	.....	106	108
Studebaker Co., com.	30,000,000	100	*	.....	39	40
Studebaker Co., pfd.	13,500,000	100	7	Q. Mar. 1	96	98
Swinehart Tire Co.	.....	100	*	.....	112	114
U. S. Motor, com.	12,193,350	100	*	.....	6	7
U. S. Motor, pfd.	11,491,133	100	*	.....	29	32
White, pfd.	.....	100	7	S.A. May 1	109	...

May Control Local Shows

N. A. A. M. Contemplates Forming Circuit in Large Cities and Assuming Jurisdiction

Conflicts Will Be Avoided and Much Expense Thereby Eliminated

THE regular periodical meetings of the Automobile Board of Trade and National Association of Automobile Manufacturers last week failed to develop several of the important situations now pending before them, but during the proceedings a considerable amount of detail work was accomplished. The merger committee has reached no definite conclusions or report and the annual show situation has not been settled. The chief matter of business at the N. A. A. M. meeting was the determination to form a circuit of local shows, the idea being to curtail the number and improve the quality.

Under present conditions there are about seventy local shows and under the rules of the association a manufacturer may take part to the extent of loaning a show car or chassis to the dealer in whose territory the show is held. As a manufacturer he is prohibited from showing. It has been almost customary for manufacturers to go into local shows in this way and the expense has proved to be a severe burden.

The intention of the association is to form a circuit embracing the principal cities, arranged so that there shall be no conflicts of dates, so that a reasonable amount of co-operation on the part of manufacturers can be given the local shows included in the circuit. The association will probably confine its attention to circuit shows almost exclusively.

The Federal Motor Truck Company was elected to membership, M. L. Pulcher being the representative.

An exclusive and distinct section in the Chicago show will be devoted to electric vehicles, for which ten choice spaces in the First Regiment Armory have been set aside.

The principal business of a public character at the A. B. of T. meeting was the partial report of the Trade Committee which has the matter of the Sales Managers' Convention in hand. The date has not been definitely set, but it will probably be in late June or early July. The program as outlined will contain papers on various subjects of vital interest to the industry. Some of the suggested heads are as follows: Whether or not the car should be listed with full equipment; advisable changes in the present custom of financing sales; as to guarantees and a host of other possible and timely topics.

Henderson Company Organized

INDIANAPOLIS, IND., May 6—The Henderson Motor Car Company, with a paid-up capital of $100,000, was organized here today and will soon begin the manufacture of pleasure cars. The following officers were elected: President, L. Carter, of Jessup, Ga.; vice-president and general manager, R. P. Henderson; secretary and advertising manager, L. S. French; treasurer, C. K. Share. The following were elected directors: L. Carter, C. P. Henderson, R. P. Henderson, E. E. Rogers and C. S. Ricker.

TOLEDO, O., May 6—Notice has been given that the plant and property of the Findlay Motor Company will be sold at auction on June 7, providing that there is a minimum bid of at least $137,500. Bills receivable by the corporation and other evidences of indebtedness to it are excepted from the terms of the sale. The purchaser is required to put up 10 per cent. of his bid at the time award is made and the remainder of the amount must be paid when the sale has been confirmed.

TABLE SHOWING THE LAP STANDING OF EACH OF THE CARS WHICH STARTED IN THE

Car—Driver	Lap No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FIAT	Elapsed time	6:30	12:35	18:51	26:08	31:27	37:47	43:30	50:31	57:03	63:24	68:47	76:52	84:31	90:50	97:12	103:34
Tetzlaff	Lap time	6:30	6:05	6:16	7:17	5:19	6:20	5:43	7:01	6:32	6:21	5:23	8:05	7:39	6:19	6:22	6:22
FIAT	Elapsed time	6:42	13:04	19:31	26:04	32:39	39:20	46:00	56:13	62:46	69:07	75:10	81:34	86:53	97:20	103:46	110:15
Bragg	Lap time	6:42	6:22	6:27	6:33	6:35	6:41	6:40	10:13	6:33	6:21	6:03	6:24	5:19	10:27	6:26	6:29
BENZ	Elapsed time	6:21	12:28	18:49	27:44	34:10	40:58	48:28	54:07	60:40	69:24	74:44	81:07	87:36	93:54	101:40	108:04
Brown	Lap time	6:21	6:07	6:21	8:55	6:26	6:48	7:30	5:39	6:33	8:44	5:20	6:23	6:29	5:18	7:46	5:24
STUTZ	Elapsed time	7:26	14:50	22:07	29:23	36:51	43:57	51:10	58:20	65:26	72:31	79:48	87:00	94:17	101:35	108:47	116:04
Lewis	Lap time	7:26	7:24	7:17	7:16	7:28	7:06	7:13	7:10	7:06	7:05	7:17	7:12	7:17	7:18	7:12	7:17
STUTZ	Elapsed time	7:25	14:34	21:44	28:55	36:12	43:26	50:39	57:53	65:20	72:06	79:28	86:45	94:30	100:28	108:08	115:35
Cooper	Lap time	7:25	7:09	7:10	7:11	7:17	7:14	7:13	7:14	7:27	6:46	7:22	6:77	7:45	5:58	7:40	7:27
SIMPLEX	Elapsed time	6:56	13:41	20:28	27:23	33:58	40:50	47:28	55:53	62:39	69:15	76:06	85:55	92:52	99:36	106:19	113:05
Dingley	Lap time	6:56	6:45	6:47	6:55	6:35	6:52	6:42	8:25	6:46	6:36	6:51	9:49	5:57	6:44	6:43	6:46
FIAT	Elapsed time	6:46	13:08	19:39	26:19	33:05	39:36	46:18	52:57	63:01	68:58	78:35	101:51	130:52	137:09	143:21	149:20
Oldfield	Lap time	6:46	6:22	6:31	6:40	6:46	6:31	6:42	6:39	10:04	5:57	9:37	23:16	29:01	6:17	6:12	5:59

Santa Monica Winner

Tetzlaff Drives His Fiat Over the 303-Mile Averaging 78.7 Miles an Hour—Bragg —DePalma, Mercer, Wins Medium

LOS ANGELES, CAL., May 5 (Special telegram)—A new world's road champion flashed across the motor horizon at Santa Monica, May 4, when Teddy Tetzlaff, of Los Angeles, in a Fiat, wrested from Harvey Herrick, another California boy, the world's speed honors, formerly held by the American-made National.

By winning the fourth annual Santa Monica road race in 3:50:57, covering 303 miles in 230 minutes and 57 seconds, the Fiat averaged 78.7 miles per hour and beat the old record by 4.1 miles per hour.

The medium car race was won by a Mercer driven by De Palma. He averaged 69.5 miles per hour.

The Maxwell won the light car race.

This is the second victory for Tetzlaff in this Pacific Coast classic and despite the fact that many of the greatest road pilots have come to the Coast for this race for 4 straight years, it has been won by a California driver, twice in world's record time and twice for a new American record.

Close on Tetzlaff's heels was Bragg in another Fiat. This plucky Easterner flashed over the line in 3:53:05, 2 minutes and 20 seconds ahead of Bruce Brown and his Benz.

The Tetzlaff Fiat won by a margin of 2 minutes and 8 seconds and it was a grueling race every foot of the way. Brown followed so close that any mishap would have produced a new leader and when Brown was forced to fall back on account of tire trouble Bragg leaped into his place.

Over-Confidence Almost Cost Race

With the race well in hand, Tetzlaff became over-confident and almost lost the hard-earned world's honors. For thirty-five laps he had sent his Fiat around the course at a speed never before known on the road without a sign of a mishap. He had been given the green flag by starter Fred Wagner and was sweeping down Ocean Front to the right-angled Nevada avenue turn. He failed to slow up sufficiently and came into this turn faster than at any other time. He seemed to realize his danger, but too late, and with a crash the flying leader went into the iron rail which formed a barricade at one side. There was a cloud of dust and the explosion of a tire. For a brief second the big car wavered and then steadied. Tetzlaff stopped quickly and he and his mechanic leaped out. Soon there came another roar, and Caleb Bragg in the second Fiat shot around the corner. He saw Tetzlaff, stopped, and the people rushed in from all sides. For a moment Bragg must have seen victory. But a hasty examination of Tetzlaff's mount showed nothing more serious than a flat tire and a dent in the gasoline tank. Replacing the tire, Tetzlaff soon had the car on its last lap. But he had lost 2 valuable minutes, and when 6 minutes had passed the crowd at the finish became anxious. But after 2 minutes wait the people at the turn were seen to wave their hats and a moment later Tetzlaff swung into the stretch and down to the tape. To bring in his car winner in such remarkable time had necessitated the making of many laps at an average speed of 85 miles an hour.

The honors for the fastest lap went to Bruce Brown, who was driving his Benz to the limit to cut down the lead of the Fiat. According to the official timing Brown covered the thirtieth lap in 5:27, but on account of a variation of the clock the correct time for this lap is about 5:32.

Tetzlaff's fast laps were in the last half of the race. During the first twenty-one laps he did not make a lap under 6 minutes, but after that he cut under that figure in almost every round. He was forced to increase his speed on account of the time being made by Brown and Bragg.

The winner had phenomenal tire luck. While the others were stopping for new casings he was tearing off lap after lap and it was not until the twelfth lap that he stopped for a change. By this time he had secured a lead of 3 minutes over Brown and 4 minutes over Bragg. A slow change showed a lap in 8:08, but Bragg was forced to stop in the fourteenth and Brown in the fifteenth.

Brown was the early leader. He cut off the first lap in 6:15. Tetzlaff's first round was made in 6:24. The third lap found Brown leading only 2 seconds and when Brown stopped in the fourth to renew two tires Tetzlaff took the lead, and from there on was never headed. Bragg was running second, but by making lap after lap at an average of 6:15 Tetzlaff increased his lead until to the end of the tenth lap he was 5 minutes and 34

LIGHT CAR RACE, 161-230 CUBIC INCHES PISTON DISPLACEMENT, 101.04 MILES

No.	Car—Driver	Bore	stroke	Laps	1	2	3	4	5	6	7	8	9	10	11	12
16	MAXWELL	4 9-64	4 1-4	Elapsed time	8:20	16:26	24:35	32:28	40:35	48:56	57:12	64:59	73:41	82:28	89:30	97:57
	Joerman			Lap time		8:06	8:09	7:53	8:07	8:21	8:16	7:47	8:42	8:47	7:02	8:27
10	FLANDERS	4	4 1-2	Elapsed time	8:36	16:57	25:14	33:36	41:47	49:59	61:57	69:51	77:51	85:46	93:45	100:39
	Evans			Lap time		8:21	8:17	8:22	8:11	8:12	11:58	7:54	8:00	8:55	7:59	6:54
11	FLANDERS	4	4 1-2	Elapsed time	8:40	16:51	25:00	33:12	41:13	49:23	57:28	65:25	72:23	85:52	93:58	102:00
	Tower			Lap time		8:11	8:09	8:12	8:01	8:10	8:05	7:57	6:58	13:29	8:06	8:02
9	REGAL	3 3-4	4	Elapsed time	8:56	17:27	25:57	34:22	42:40	51:10	58:49	68:21	76:25	85:38	94:14	102:53
	Anthony			Lap time		8:31	8:30	8:25	8:18	8:30	7:39	9:32	8:04	9:13	8:36	8:39
10	REO	4	4 1-2	Elapsed time	14:14	23:05	34:19	43:07	51:52	60:47	71:18	79:52	88:15	97:16	105:57	114:53
	Krouse			Lap time		8:51	11:14	8:48	8:45	8:55	10:31	8:34	8:23	9:01	8:41	8:56
13	BUICK	3 3-4	3 3-4	Elapsed time	8:35	38:21	46:45	55:19	71:56	80:03	88:03	96:05	104:07	112:10	120:08	
	Nikrent			Lap time		9:46	8:24	8:34	13:37	8:07	8:00	8:02	8:02	8:03	7:58	
14	FORD	3 3-4	4	Elapsed time	9:52	19:05	34:25	62:30	71:47	82:34	92:41	101:41	111:33	120:19		
	Rosher			Lap time		9:13	15:20	28:05	9:17	10:47	10:07	9:00	9:52	8:46		
12	FORD	3 3-4	4	Elapsed time	8:47	17:06	26:33	33:39	44:41							
	Charle			Lap time		8:09	8:27	7:06	11:02							

SANTA MONICA FREE-FOR-ALL AT LOS ANGELES, CAL., ON MAY 4. 36 LAPS (303 MILES).

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
109:50	117:58	123:24	130:40	139:22	145:14	151:05	155:56	162:49	168:21	173:55	178:56	185:48	191:34	197:17	205:12	211:13	216:53	222:35	230:57
6:16	8:08	5:26	7:16	9:42	5:52	5:51	4:51	6:53	5:32	5:34	5:01	6:54	5:46	5:43	7:55	6:01	5:40	5:43	8:22
116:41	123:07	130:44	137:26	143:42	149:32	155:28	161:11	168:52	174:37	180:41	186:36	192:20	197:58	203:46	209:25	216:56	222:29	228:03	233:35
6:26	6:26	6:37	6:42	6:16	5:50	6:56	5:43	7:41	5:45	6:04	5:55	5:44	5:38	5:48	5:39	7:31	5:33	5:34	5:32
114:33	121:07	127:34	134:08	141:57	147:40	153:27	159:08	164:51	170:36	179:07	184:50	190:27	196:00	204:16	211:25	219:38	225:10	230:31	235:32
6:29	6:34	6:28	6:34	7:49	5:43	5:47	5:41	5:43	5:45	8:31	5:43	5:37	5:33	8:16	7:09	8:13	5:32	5:21	5:01
123:18	130:29	137:47	144:49	151:30	158:16	164:57	173:04	179:50	186:34	192:54	199:50	206:43	213:26	220:01	226:50	232:53	238:40		
7:14	7:11	7:18	7:02	7:19	6:46	6:11	8:07	6:46	6:44	6:20	6:56	6:53	6:43	6:35	6:49	6:03	5:47		
122:54	130:33	141:03	147:50	154:33	161:13	167:52	174:36	181:22	188:10	194:50	201:31	208:20	214:50	221:11	227:34	233:37	239:52		
7:19	7:39	10:30	6:47	6:43	6:40	6:39	6:44	6:44	6:48	6:40	6:41	6:49	6:30	6:21	6:23	6:04	6:15		
119:55	126:42	133:30	139:59	147:21	155:33	163:50	175:49	182:07	188:26	194:40	202:02	208:46	214:49	221:03	227:10				
6:50	6:47	6:48	6:29	7:22	8:12	8:17	11:59	6:18	6:19	6:14	7:22	6:44	6:03	6:14	6:07				
155:27	161:34	177:14	183:46	189:54	195:58	202:35	209:09	215:46	230:41										
6:07	5:07	5:40	6:32	6:08	6:04	6:37	6:34	6:35	14:55										

Breaks World's Record

Route in 3 Hours, 50 Minutes and 57 Seconds, Finishes Second and Bruce-Brown Third Car Race; Maxwell, Light Car Event

seconds ahead of Oldfield, who by constant going had climbed into second place with the Fiat. Bragg lost valuable minutes in the eighth lap on account of tires. Bragg stopped at the pit again in the fourteenth to change tires and take on gas.

Oldfield was driving his race just as he had planned and was in the contending position when he came to grief in the twelfth lap. A spring bolt broke. This interfered with the steering and he drew up at the pit for repairs. But he suffered further trouble on the next lap and the loss of over 30 minutes put him completely out of the running. Barney's tires were in good shape and he threatened to be dangerous until trouble came. Dingley in the Simplex had been making some fast laps, but repeated tire changes soon put him far behind. The Stutz cars ran consistently throughout the race and for lap after lap were not separated by over 25 feet.

At the end of the fifteenth lap, with 126 miles covered, Tetzlaff was leading Brown by 4 minutes and 18 seconds. Bragg had dropped back and was running 2 minutes behind Brown.

Tetzlaff's next stop was in the eighteenth lap, when he took on oil and gasoline and changed two rear tires which showed wear. This loss of a minute and a half did not lose the lead for the Californian, and at the end of twenty laps he led Brown by 3 minutes and 28 seconds. The big chance for the Benz came in the twenty-fifth lap, when Tetzlaff stopped to change a tire, that lap consuming 8 minutes and 35 seconds. Brown swept by like a cyclone while the change was being made, but in the same lap changed a tire himself and lost the advantage which would have put him on the heels of the leader. As it was, the finish of the twenty-fifth lap found him only 2 minutes and 3 seconds behind Tetzlaff.

By this time Tetzlaff realized his danger from the fast-coming Brown and began to increase his speed. His laps became faster, the two Fiats and the Benz turning lap after lap at an 85-mile pace. The twenty-seventh was a bad lap for Brown, who stopped for tires and fuel. This gave Tetzlaff another advantage and Bragg, who had been coming up, was only a minute behind the Benz. Tetzlaff's fast pace had given him a lead of one whole lap, but a cry of disappointment went up when he stopped at the finish of the thirty-first to take on tires and fuel. A few seconds later Brown also came to a stop for tires and thus another chance was lost to make up the lost advantage. From there on Bragg became the contender and between the thirty-second and thirty-sixth laps Caleb cut down the lead from 4 minutes and 13 seconds to half of that.

Ralph DePalma and his speedy Mercer won the medium class in record time. He averaged 69.5 miles per hour for the 151 miles and had the race well in hand almost from the start. The Case cars driven by Nikrent and Disbrow made a very creditable showing. They were the contenders and gave a consistent performance. Devore in the Buick was in front in the fifth and sixth laps, but he came to grief on the backstretch and retired from the race.

The light car race went to George Joerman, a Los Angeles youth, who had bought the Maxwell racer for his personal use. Towers in the Flanders came to the front in the ninth lap but a broken pipe set him back. The Flanders were second and third.

The crowd was immense, numbering fully 150,000. The 8-mile course was surrounded by a mass of people many rows deep.

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Fast Time at the Motordrome

LOS ANGELES, CAL., May 5 (Special)—A large crowd saw fast time on the Motordrome today. DePalma in the Mercer won the 5-mile event in 3:49.90; Case second and Case third.

Bragg drove the Fiat 5 miles in 3:11.75, and Disbrow in the Jay-Eye-See went 2 miles in 1:20.45. He also went 1 mile in 40.15.

Bragg won a 5-mile race from Disbrow in Simplex in 3:18.

Disbrow in a Simplex won a 5-mile race in 3:55.20. The Case was a close third in 3:55.58. A second Case was third.

Oldfield drove a Benz 5 miles in 4:00.

Disbrow in a Case won the 10-mile race in 7:46. Flanders was second.

DePalma won a 15-mile race in 11:20. Nikrent in a Case was second.

The 25-mile race for small cars went to the Flanders in 21:12.

The 25-mile race for medium cars was won by Disbrow in the Case. DePalma was second. Time 18:53.20.

RACE FOR CARS WITH PISTON DISPLACEMENT RANGING FROM 231-300 CUBIC INCHES, 151.50 MILES

Car—Driver	Laps	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MERCER	Elapsed time....	7:24	15:28	21:44	29:03	36:17	43:25	50:33	57:45	64:48	71:57	79:11	86:43	94:21	101:49	109:07	116:24	123:26	130:43
De Palma	Lap time.....	7:24	6:04	7:16	7:19	7:15	7:08	7:08	7:12	7:03	7:09	7:14	7:32	7:38	7:28	7:18	7:17	7:02	7:17
CASE	Elapsed time....	7:31	14:51	22:11	29:34	37:58	44:14	51:34	58:50	66:10	74:34	82:06	89:36	97:35	104:34	111:59	119:23	126:52	134:25
L. Nikrent	Lap time.....	7:31	7:20	7:20	7:23	8:24	6:16	7:20	7:16	7:20	8:24	7:32	7:30	7:29	7:29	7:25	7:24	7:29	7:23
CASE	Elapsed time....	7:39	15:09	27:09	35:12	42:35	50:15	57:14	65:34	73:13	80:57	88:42	96:23	103:58	111:37	119:15	126:51	134:29	142:08
Disbrow	Lap time.....	7:39	7:30	12:00	8:03	7:23	7:40	6:59	8:20	7:39	7:44	7:45	7:41	7:35	7:49	7:38	7:36	7:38	7:39
WARREN	Elapsed time....	8:58	17:33	25:53	34:07	42:15	50:16	58:23	66:23	74:14	85:05	96:34	108:24	116:44					
Miller	Lap time.....	8:58	8:35	8:20	8:14	8:08	8:01	8:07	8:00	7:51	10:51	11:29	11:50	8:20					
SCHACHT	Elapsed time....16:39		31:50	43:41	57:34	72:33	88:57	99:25	108:47	118:38	128:23	137:30	147:13						
Shain	Lap time.....16:39		15:11	11:51	13:53	15:01	16:24	10:28	9:22	9:51	9:45	9:07	9:43						
BUICK	Elapsed time....	7:36	14:50	21:59	29:06	36:14	43:15												
Devore	Lap time.....	7:36	7:14	7:09	7:07	7:08	7:01												
MERCER	Elapsed time....45:32		70:43																
Teffkins	Lap time.....45:32		25:11																
MIDLAND	Elapsed time....	Out, magneto trouble.																	
Seifert	Lap time.....																		

Commissioners Kill Fairmount Park Race

Alleged Danger to Racing Drivers and Spectators Is Reason for Park Commissioners' Action

Dr. White Introduces Resolution to Hold Race Despite Today's Decision

PHILADELPHIA, PA., May 8 (Special Telegram)—The 1912 Fairmount Park Race, scheduled to take place on October 5, was officially killed as a result of a decision which was reached at the May meeting of the Fairmount Park Commissioners. The meeting took place this afternoon, and the decision denying the permit for the Fairmount event was adopted as a result of the argument that participants and spectators in the race were exposed to unnecessary danger by the racing cars.

A resolution introduced by Dr. J. William White to continue the event this year was adopted almost unanimously, one dissenting vote being cast by Chief Fred C. Dunlap of the Water Bureau, who refereed the 1911 Fairmount Park Race. The adoption of the White resolution was urged by Mayor Blankenburg.

A. C. A. Rebels Bolt Special Meeting

Adopting the majority report of the special committee named last February to frame new rules for the Automobile Club of America, the adjourned meeting of the organization was the scene of a stirring contest until after midnight May 1. The final vote was announced as unanimous.

This was accomplished, however, after a lively meeting, attended by about 100 members, seventy-five of whom were hostile to such a result.

President Sanderson called the meeting to order and named a committee to count the proxies of absent members. The insurgents protested and attempted to substitute another committee for the one named by the chair.

The chair overruled the effort for a substitute committee and thereupon the insurgents tried to get a motion to adjourn before the house. This was balked and when the motion to adjourn was put from the floor, seventy-five voted in the affirmative.

The count of proxies was then completed and after organization, the majority report was adopted as well as the suggested constitutional changes.

As published in THE AUTOMOBILE, the report submitted by the minority differed chiefly from the one adopted in the matter of solicitation of proxies. The majority contended that it was legal in New York and the minority that it was unethical. The reports also diverged somewhat in the matter of allocating the charges for expenditures to the various departments of the organization. Both agreed that it would be well to adopt such a plan, but the majority reported that the accomplishment of such a result would be exceedingly difficult and that as all of the various departments of the club were in reality intimately related to the welfare of the club as a whole, it would be unfair to set up a balance sheet as a standard by which to judge whether or not several of the departments should be continued.

Preparing for Four-States Tour

INDIANAPOLIS, IND., May 4—The second Four-States Tour will leave Indianapolis July 9 and reach Findlay two days following. The object of the tour is mainly a patriotic one on the part of the contestants. There is no competition, the sole object being to show the cars made in the Hoosier State. This state claims more plants than any other state in the union, some forty-three different makes of cars being made here. The total value of the output of the entire state for the coming season is placed at $67,000,000.

The Denver-to-Indianapolis Tour

DENVER, COL., May 4—The Denver Chamber of Commerce has abandoned its project for a Denver-New York sociability run and has made Indianapolis the easternmost point touched by the tour. This action was taken because the managers felt that a shorter tour through the Middle West would mean more to the good roads and tourist movements of Colorado and the West than a long trip to the Eastern seaboard, which would allow only a short stop to be made in each town. Great interest is being taken in the tour by the local automobilists, and it is probable that there will be at least twenty entries. Henry B. Joy, president of the Packard company, has signified his intention of coming to Denver within the next few weeks in order to join the party when it leaves for the East on May 21. The run will partake both of the nature of a sociability and reliability affair.

American Cars Win in Algeria

In the touring and reliability contest in French Algeria, Africa, which came to a close April 23, four cars came through on even terms. These were a Panhard, a Ford, a Berliet and a Rolland-Pilain. Other winners followed in the order named: One Reo, one E-M-F, three Cottin-Desgouttes and another E-M-F. The penalization was points, as follows: Change of tire casing, 2 points; stop due to gasoline or oil, 5 points; cleaning of spark-plug, 2 points; loose wire, 1 point; replacement of fan belt, 2 points; tightening of nut, 1 point per nut; change of carbureter float, 5 points; sudden stoppage of motor (seizing), 3 points; replenishment of water, gasoline or oil outside of the regular stopping places, 5 points; brake adjustment, 3 points; clutch adjustment, 5 points; priming the carbureter, 1 point; all stops due to other causes than those named, 10 points.

In addition, a penalty of 1 point was marked for every minute in excess of 5 minutes required for rectifying any cause of trouble, excepting only tire repairs, for which 30 minutes were allowed with 1 point penalty for every minute extra. The raising of the motor hood outside of parking spaces cost 1 point unless incidental to another penalized act.

Twenty-seven Sweepstakes Entries

INDIANAPOLIS, IND., May 7—Twenty-seven speedy racing cars will contend for victory in the second annual 500-mile international sweepstakes. The list of drivers includes about all the famous racing pilots in this country. The list follows:

No.	Car	Driver	Cyl.	Bore.	Str.	P.D
1.	Stutz	Anderson	4	4¾	5½	389.9
2.	Stutz	Zengel	4	4¾	5½	389.9
3.	Fiat	Tetzlaff	4	127 mm	190 mm	589
4.	Mercedes	DePalma	4	130 mm	180 mm	583
5.	Case	Disbrow	6	4 23/64	5	447.8
6.	Case	Herrick	6	4 23/64	5	447.8
7.	Mercedes	Wishart	4	130 mm	180 mm	583
8.	National	Wilcox	4	5	7½	589
9.	National	Herr	4	4½	6	448
10.	Lexington	Knight	6	4½	5½	421
12.	Simplex	Dingley	4	5¾	5¾	593
14.	White	Barndollar	6	4¼	5¾	489
15.	Cutting	Burman	4	5 7/32	7	597.9
16.	Firestone-Columbus	Frayer	4	5	5½	432
17.	Marquette-Buick	Liesaw	4	6	5½	594
18.	Schacht	Endicott	4	4¾	5½	389.9
19.	Knox	Mulford	6	4.8	5½	597
21.	Mercer	Hughes	4	4¾	5	300
22.	Lozier	Horan	4	5¾	6	544
23.	McFarlan	Marquette	6	4¼	5	425
24.	Opel	(Unnamed)	(Specifications not given)			
25.	Lozier	Matson	4	5¾	6	544
26.	Special	(Unnamed)	(Specifications not given)			
27.	Continental	Jenkins	4	4¼	4½	286.3
28.	Stutz	Merz	(Specifications not given)			
29.	National	(Nnnamed)	4	4¾	6	448
31.	Mason	(Unnamed)	4	3 15/16	5	240

Preservative Virtues of Paint and Varnish

How to Paint a Radiator—Avoid Premature Use of Polishes—Care of Unseen Parts

The Vogue in Monograms—Some Pointers as to Make-Up and Color

In painting radiators avoid smearing on any heavy body of pigment. The less body of paint applied to these parts of the car the better, for reasons which are obvious. First, get the surface slick and clean and then put on a thin coat of some strong, tough pigment that will stand about every possible condition in the catalogue of hard service. Gray or brown metallic paints are used to advantage; likewise aluminum bronze paint is doing well for this service. Asphaltum preparations in the capacity of radiator paints are doing nicely when applied in thin body. The trouble has been that the mesh of the radiator becomes clogged with pigment, whereas under a correct process this condition should never occur.

It is quite a common practice in some sections to commence the use of cleaners and polishes immediately upon putting the newly-varnished car in service. This is a mistake which all parties concerned with the appearance and welfare of the car should correct. It is an unwise policy to put a substantial sum of money into the painting and varnishing of the car and then at the zenith of its finest brilliancy to begin a treatment the erosive effect of which is very sure to nip off the high lustre and rob the car of an appearance which the owner has paid well to have developed. A first-class automobile varnish in the flower of its youth needs no treatment, so long as its vigor and high luster are retained in full measure, other than a thorough bath in clean, cold water as often as the car is used on muddy or dusty streets and highways. This is in the natural order of all things relating to the wear and life of varnish. This water bath is, moreover, the correct treatment for muddy tires. As a matter of fact, clean water, pure and simple, is about the only medium that should be used to clean the tires. Kerosene, benzine, naphtha, gasoline, etc., used with water in varying percentages, or alone, are injurious to the rubber, as observation and tests have within the past two or three years fully demonstrated.

In connection with this matter of washing the automobile the question of using hard water often arises. Hard water is said to have the effect of blighting the luster of varnish. Hard water, so-called, contains carbonate of lime, carbonate of magnesia and the sulphate of magnesia. This hardness may be overcome by adding lime water, or a small amount of lime to the water. Another, and perhaps the commoner method of eliminating or neutralizing the above substances, is by adding carbonate of soda, or as it is better known, washing soda. The addition of borax or of ammonia often serves to soften the water.

Constant Attention Saves Money

The owner of a car with a metal body, and especially a steel body, should be taught the importance of keeping the surface under an adequate body of varnish. A close watch should as a matter of prudence be kept upon the car surface, and as soon as any flaky condition of the surface manifests itself, or any spots of the raw metal, however minute, are to be seen, they should be attended to at once, the car owner either doing the work himself or running the machine around to the painter. "A stitch in time saves nine," tells the story in this work of keeping paint and varnish upon the metal surface. A brief neglect of these parts where the painted surface is fractured, and behold! a little rust is kindled. Rust is a substance that, once getting a nibble of the metal, never lets go; nor does it ever take a day off. Sand blasting or the power of an emery wheel are the only sure cures for this widespread and malignant metal surface disease. For which reason the car owner may well be admonished to maintain a rigid inspection at frequent intervals of the car's paint and varnish raiment.

On getting out automobile equipment the painter owes it to himself and to the car owner to give strict attenion to all the minor details—to the seemingly trivial things which, after all, make up the sum of the whole matter in the balance and finish of the paint structure. As an object of general observation the finish may look every inch a prize winner, but under the close inspection of the public trained to know the importance of the things which are needed to round out and give distinction to that finish, it may lack a lot of really essential touching up.

The car owner and the car painter, therefore, should look well to the finish of *all* the car parts, however seemingly remote from the public view they may be. See to it that everything paintable and varnishable gets its full quota of pigment and varnish. It is this distinguishing feature in the painting and equipment of the French cars which has given them a world-wide prestige. And it is the feature which must figure ultimately in giving to the American-made and painted car the one touch of elegance hitherto in some part lacking.

In the Matter of Monograms

In painting and finishing limousines and broughams the door rabbets, door edges and such other parts on the inside of the car as are handled a great deal, and upon which it is difficult to maintain an unsoiled finish, should be brought to a hand-polished finish. To develop this finish proceed as follows: Bring the surface along into the varnish stage about as you do all the other parts. Bring the rubbing varnish coats out as clean and free from dust as possible. A coat of varnish color and one of clear rubbing varnish will suffice. Rub the latter in due time very thoroughly with pumice stone flour and water; wash up carefully and flow on a coat of polishing varnish. When this coat has dried firm and hard rub first with water and pumice stone flour, after which polish the surface with a tuft of cotton saturated with a good varnish polish, or with a mixture made up of equal parts of refined sweet oil (or olive oil) and alcohol. Follow this up as a final operation by rubbing the surface with the palm of the hand, using circular motions, and conclude the whole operation by giving a roll of white cotton waste a mere vapor of alcohol with which clean off the surface. Polishing is the result of developing friction upon the surface sufficient, after it has been first rubbed with water and pumice stone, to bring out a high, sharp brilliancy which handling and the ordinary usages of service fail to tarnish or blur. For the parts of the car above noted it is therefore quite the proper and appropriate finish.

Monograms on the big pleasure cars are being more largely used this season that ever before. The monogram is an ornament of distinction and the car owner is clearly in the right in insisting upon a style and a design of color that will harmonize in all respects with the conformation and color of the surface. That is practically the main consideration involved.

In the making of the monogram it is the rule to make the initial of the surname predominate over the initial of the Christian name, the surname initial being given conspicuous attention through the medium of attractive color effects.

While the striping colors employed upon the chassis are supposed to, and in the main do, govern the color or colors of the monogram, this rule is violated to no small extent, and, without giving offense. Harmony by analogy and harmony by contrast are practiced indiscriminately. The principle of harmony by analogy provides for painting the monogram in relief with one color and its blended tints and shades. Harmony by contrast means, in a word, painting each letter of the monogram a different, but complementary color.

First Principles for the Cooling and Lubrication of Automobile Motors in the Light of Recent Developments—Fuel Efficiency Versus Operating Efficiency—New German Riveting Tool—Giolitti's Muffle

RELATIONS of Lubrication and Cooling—The advent of the valveless engine in many types has somewhat upset some of the theories relating to the efficiency of hydrocarbon engines which until then had been considered secure. And at the same time the development in lubricants and in cooling metals has brought up new factors to be taken into account by those who would make their automobile motors as efficient and also as reliable as possible. On one side, highly viscous mineral oils—the products of special refining processes—are recommended on the ground that they are readily consumed in the explosions of the motor without leaving a residue and serving to cool it before they are consumed. On the other side, deflocculated graphite has entered upon the scene, and its virtues depend upon the fact that it is not at all consumable but leaves a residue which in itself is a lubricant, while the oil, in which it is suspended for purposes of distribution, is consumed. Whether the graphitic residue left on the cylinder walls affects the conductivity of these walls and therefore should be taken into account in the provisions for cooling, does not yet seem to have been decided; neither are reports and theories at one with regard to what becomes of the precipitated graphite after the coating of the cylinder walls has reached its maximum. An authority on the subject, Mr. A. Guéret, suggests that the factory tests of motors should be carried to the point that every motor sent out in a new automobile has its cylinders lined wih solid graphitic lubricant, and with the piston rings and grooves in the same condition.

What with the differences in thermic and mechanical conditions under which an automobile motor is operating at the various stages throughout the gamut of throttle control and the new viewpoints which have come to the surface by familiarity with long-stroke and valveless motors and through the combination of air-cooling, oil-cooling and lubrication in the rotary aviation motors, European motor designers and experts are revising the opinions which have heretofore been leading.

An indication of the doubtful attitude taken in the technical world with regard to these factors is given in the following article by Mr. d'About, one of the best-known French writers in the field. It is rendered with only a few abbreviations in the following:

Cooling and Oiling of Touring Cars—It is known that in order to lubricate the cylinders of an internal combustion motor these must be kept cool. No mechanism can operate without lubrication of some kind. But an excess of lubrication, which has no bad consequences in most mechanisms, produces in an explosion motor the same final result as the lack of oil; namely, the stopping of the motor. It ceases to function. The excess oil decomposes, the carbonaceous residue accumulates on all parts. Increased mechanical friction, short-circuited plugs and overheating of all coated parts with pre-ignition of charges are the eventual results, to be obviated only in part by frequent cleaning. A portion of the oil is consumed at the same time as the gasoline, and this consumption is so much greater as the motor is hotter. But combustion in this case means decomposition of the oil, under the influence of the heat, and combustion of the carbon liberated by the decomposition. These chemical transformations are made at the expense of the thermic efficiency of the motor. If the carbon burns it combines with oxygen, but the weight of oxygen admitted to a cylinder is limited. If a fraction of this oxygen is used for burning oil whose calorific power is smaller than that of gasoline, it will be at the cost of the general efficiency. It is then necessary to reduce the richness of the explosive mixture in order to have sufficient oxygen for its combustion and obtain a maximum expansion of the nitrogen in the charge.

[The author is here drifting into an argument which would seem to point to the employment of an incombustible lubricant suspended in an oil which is easily combustible and contains as many calories as gasoline, and, as enough oxygen must be provided for the whole combustion, while the ignition must also be provided for, the argument also points to the utmost reduction of the quantity of the oil in which the incombustible lubricant is carried or to the use of a volatile oil as a carrier; even to carrying the incombustible lubricant—and none but Atcheson graphite is known—in the gasoline itself. But the author does not draw these inferences.—ED.]

It is known that the maximum efficiency is obtained from a motor by using a mixture of gasoline and air in certain proportions which vary for different motors, but which in all cases are characterized by the result that neither free oxygen nor free hydrogen is found in the exhaust gas. If the mixture is too poor, it is free oxygen which is found. Then, if more gasoline is added, the efficiency goes up until no more free oxygen appears in the exhaust, but, if still more gasoline is added, free hydrogen appears and the efficiency drops rapidly, although the power may remain about the same for some time. And it has been shown in tests that the oil consumption keeps step with the reduction of the fuel efficiency. So long as the power remains unaffected, as the efficiency dwindles the oil consumption goes up. Is it not, then, permissible to infer that it is the combustion of the oil which absorbs the oxygen which otherwise could have combined with the free hydrogen and thereby could have increased the heat development, the expansion of the nitrogen and the efficiency?

To avoid fouling and that reduction of thermic efficiency which is due to combustion of the lubricant, and, on the other hand, to avoid at the same time the reduction of mechanical efficiency in the form of increased friction or seizing of the piston, it is necessary to keep the lubrication within certain limits determined by experence.

But, as already mentioned, the oil consumption is greater the hotter the motor, and we conclude that it is advisable to keep the cylinder walls as cool as possible so as to keep the oil consumption in check. On the other hand, we know that from the thermo-dynamic viewpoint it is advantageous to cool as little as possible, in fact, no more than just enough to admit of lubrication. If we start a cold motor and measure its power as it gets warmer, we find that this power grows very rapidly until the cylinder walls reach a certain temperature, varying for each motor, but, then, when this temperature is exceeded, the power

drops, and eventually, to avoid seizing, it is necessary to increase the lubrication considerably. A diagram of the readings shows that the thermic efficiency increases during the first stage and subsequently diminishes by reason of the increased oil consumption. The mechanical efficiency reaches its zenith shortly after the start, while the cylinder walls are not yet above a temperature of 40 degrees C., decreases slowly up to a temperature of 120 degrees and then drops very rapidly. [The author shows a diagram with the curves of thermic and of mechanical efficiency as functions of the temperature of the cylinder walls.]

The total, or commercial, efficiency which is the product of the thermic and the mechanical efficiency, also shows an increase at the beginning followed by a rapid decrease.

These considerations should then lead us to cool as little as possible, while those above mentioned, relating to the combustion of the lubricating oil, should lead us to cool as much as possible. Which of these considerations should prevail?

Another French Engineer Quoted—Mr. Carles has answered the question as follows: "The cylinder walls should be cooled as much as possible. This will make itself felt in the oil consumption. The motor will work more silently. The response to the throttle will be prompter. The frictions will be diminished. It will also permit a less advanced opening of the exhaust valves, as the gases are better cooled during the exhaust stroke. The combustion chamber, on the other hand, should be kept as hot as possible.

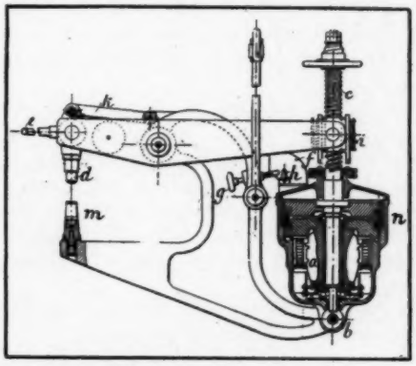

Fig. 1—German electric riveting machine

"To express this rule in figures, we would say that the exterior wall of the combustion chamber should be kept at 160 to 170 degrees C. and the exterior wall of the cylinder at 70 or 60 degrees or even much lower, but there is nothing absolute in these figures. Experience alone can determine what they should be."

Mr. d'About resumes: The application of this principle would, however, present great difficulties in the way of design by reason of the differences in expansion of the metal in the cylinders and that in the combustion chambers; besides it must always be necessary to provide energetic cooling of the exhaust valve and of the spark-plug. But in the case of valveless motors these difficulties are no doubt less formidable.

For my part, I believe that the motors of touring cars should be cooled as energetically as possible, in the combustion chambers as well as in the cylinder walls. These motors will then be more flexible, more silent, will consume less oil, will have a better mechanical efficiency and consequently will last longer. Let us not be influenced by the results obtained in some American motors. The gasoline consumption in these motors is very small, but what is their oil consumption and what is the wear after a few years of use? Let us cool our motors by the most energetic water cooling. There are still too many motors which overheat on every hillside.—From *La Technique Automobile et Aèrienne*, March 15.

[American manufacturers have long ago discovered that the strict fuel efficiency standard leads into the technical dilemma, to which the author and other European engineers constantly refer, as in this article, but they are furnishing the practical solution in the form of motors with a large surplus power-capacity; motors which need rarely be driven at the rate where the oiling and the cooling requirements clash. The American standard may perhaps be characterized as that of "operative efficiency" which moves with advancing technical resources, but not in advance of them.—Ed.]

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Electric Riveting Machine—The accompanying illustration, Fig. 1, shows the construction of the Flohr electric riveting machine, which is described in the journal of the society of German engineers for January 27. While this machine weighs about 2,750 pounds and is intended to be suspended at its center of gravity, from a traveling crane, for example, so as to be operated by a single man acting at the handle *e*, it would seem to be possible to build it in much smaller sizes in which it would be available for automobile frame work. It consists of a frame carrying the counter block *m*, a lever upon which the hammer *d* is mounted, an electric motor which is journaled to the frame at *b* and whose armature *a* can be clutched to the shaft *c*. The latter is threaded on a portion of its length and carries a nut *i* which is journaled to the hammer lever in such a manner that when the shaft *c* turns with the armature *a* the hammer is moved in the plane of the riveting operation (which may be up and down or any other direction).

The connection between the armature *a*, which turns continuously in one direction, and the shaft *c* is effected by means of a magnetic sleeve mounted in the flywheel *n*, which is keyed to shaft *c*. The clutching and unclutching may be effected by hand by pressing a button in the operating handle *e*, or else automatically by a pair of contacts *g h* actuating the interrupter *f* and so regulated that the armature is unclutched before the hammer comes in contact with the rivet. The blow is thus delivered only by the momentum of the flywheel and a part of this momentum is also used at the end of the stroke to compress the spring of a buffer terminating shaft *c* and thereafter to draw back the nut *i*. The hammer is journaled to its lever and to a rod *k* so as to remain always in exact prolongation of the counter-block *m*.—From *Le Génie Civil*, April 20.

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Casehardening by Gas—While the experiments conducted at different learned institutions to find a practical method for effecting the cementation of steel articles by exposing them direct to gas rather than to the gases developed through the heating of casehardening compounds have not yet brought results which can be considered as superior to those accomplished by the old method, they have created wide interest and promise eventual success. The chief advantage in view is improved control of the depth and hardness of the carburated layer, with gradual transition from hard to soft. The apparatus used by Giolitti, whose experiments have been widely noted in the metallurgical press, is simple. In an ordinary muffle heated by gas there is introduced an ovalized cast steel cylinder, closed at one end, in which the pieces to be hardened are received and in which are fixed a series of tubes which admit of the injection of gas during the process of cementation. The cylinder, *a* in Fig. 2, projects through the muffle furnace door with its flanged open end to which is bolted a head provided with an upper loading chute *b*, a peep window *c* and a series of holes along the bottom portion through which the gas tubes extend into the cylinder, and finally with an emptying chute *e*, through which the work may be removed. During the operation, carbonic, nitrogen or other gas is introduced according to the through the tubes *d* requirements. —From *Stahl u. Eisen.*

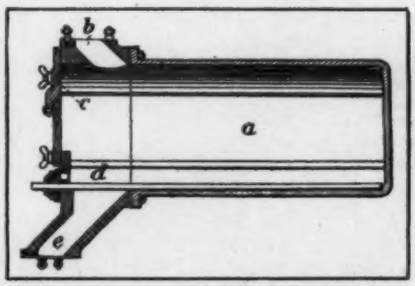


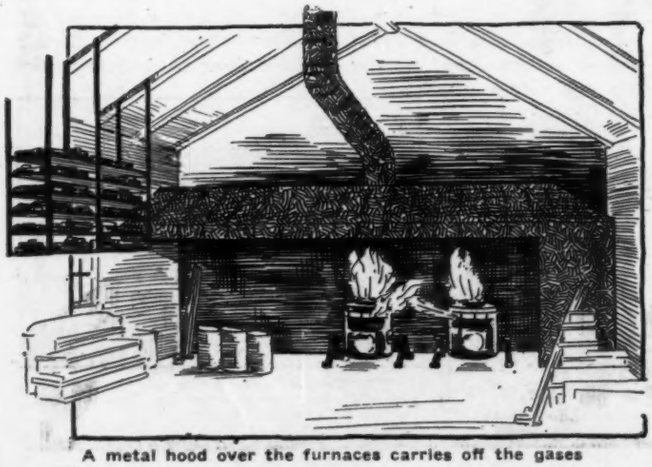
Fig. 2—Illustrating the simple form of muffle for casehardening by heated gases as used by Giolitti.

Factors in Production

Methods that Increase Manufacturing Efficiency

The metal racks are handy in the machine shop—the workman's position allows him to work efficiently and comfortably

NOW that manufacturers are awakening to the possibilities of scientific management as a means of reducing the cost of factory operation, and, consequently, of production, nearly everyone is interesting in examples of the application of these principles. Most of the companies now conducting their works under such a system accepted it as an innovation, after investigation, and altered the methods in use in their plants to conform to the new conditions. There are some, however, which had been working for some time along the lines now commonly designated as peculiar to scientific management and which allowed the underlying principles to determine, or at least to influence, the development of their factories. One of the concerns which fall under the second classification is the Lovell-McConnell Manufacturing Company, Newark, N. J., manufacturer of the Klaxon horn and other automobile accessories. In planning its factory, this firm had made it an aim to simplify things as much as possible and to bring into consideration every factor which would tend toward facilitating and increasing production as well as toward promoting the welfare of the employees. The result of this analytical method of development is apparent today in the excellent organization and appointments of the plant. An incident which is significant of the thoroughness with which the company carried out its ideas occurred not long ago. Thinking that they might have overlooked something, the members of the firm invited a prominent exponent of the school of scientific management to visit the factory and to offer suggestions for the improvement of their methods. When the efficiency engineer had inspected the plant he said to the members of the firm: "You have scientific management here but you didn't know what to call it."



A metal hood over the furnaces carries off the gases

The plant is situated on the outskirts of Newark and consists of three buildings, a power house, foundry and the factory proper. The neighborhood is comparatively new and the plant has a great deal of vacant land around it but, from all indications, it will not be long before the district will be converted into a factory and residence section. Although the Klaxon plant has no siding, the railroad is not far away and shipping facilities are very good.

At present there are 160 men employed by the company, distributed throughout the various departments as follows:

Department	Number of men
Foundry	20
Machine shop	80
Buffing and enameling	20
Motor	25
Final assembling	15
Total	160

The average output of the plant is almost 200 finished horns a day.

The main building is separated from the power house by an alley which gives access to the shipping platform situated at the rear. In order to obviate the necessity for tearing up the alley in case of trouble with some of the pipes, the company had an underground conduit constructed connecting the two buildings as shown at the left of the illustration on page 1078. The entrance to the conduit is shown at the right of the picture. This is large enough to permit of a man entering it to examine or repair the pipes or wires. There is no other connection between the buildings, the conduit containing not only the water, steam and air pipes, but also the interdepartment telephone wires, thus doing away with outdoor wiring.

Provision Made for Expansion

In considering the plant in detail it seems most logical to begin with the power plant and then to follow the material through the various departments in the regular progress of manufacture.

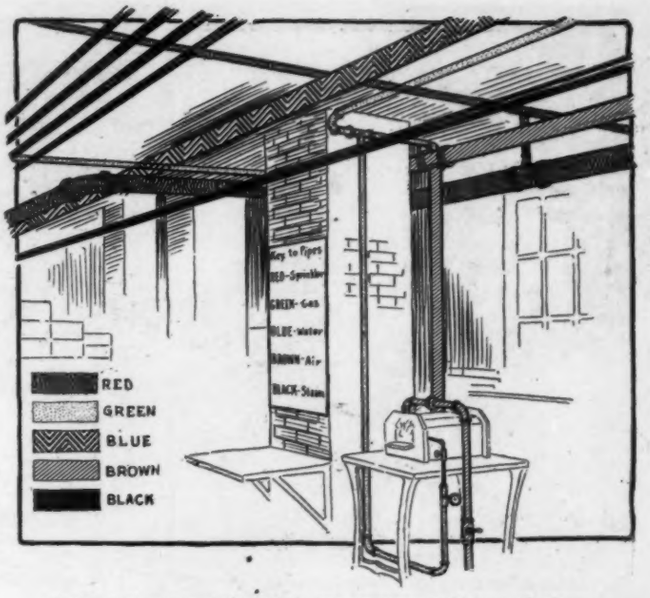
When constructing the power plant the company foresaw the possibility of future growth and made the engine room large enough to contain two reciprocating steam engines, although only one is necessary at the present time. In accordance with the same idea the boiler room was made large enough for two boilers so that when the company requires an increased power

equipment no alteration of the power house will be needed to accommodate the additional machinery. To facilitate the delivery and storage of coal in the power house a large vault is provided under the alley near the conduit with a manhole in the alley. A characteristic bit of orderliness is in evidence in the engine room. This is a board fastened to the wall and holding all the small tools used in the power house, such as wrenches, pliers, etc. After using the tools the men put them back on the board. The advantages of this system over letting the men leave the tools about are obvious.

Excelsior Vault a Feature

The engine and boiler rooms take up only a part of the building, the rest having been made into a fireproof vault, fitted with a steam coil for regulating the temperature, for the storage of excelsior. The company uses a large amount of this highly inflammable material and the vault is necessary as a protection against fire. It cost $700 to construct but it serves a number of ends besides that of fire protection. It allows the company to secure lower insurance rates than they could get if the excelsior were less carefully kept. As its capacity is nearly two carloads, the company saves $6 a ton by buying its excelsior in bulk and eliminates a great deal of loading and unloading. Naturally, it considers the money spent on the vault as well invested.

When the raw material comes into the plant, a large part of it goes to the foundry, where it is molded into rough shapes. This part of the plant does not give much opportunity for the application of labor-saving devices, as practically all of the work is of a large, heavy sort, but the company has endeavored to make conditions as favorable to the workmen as possible. A great sheet metal hood runs across the end of the building to carry away the gases given off by the furnaces, which are situated beneath it. As a result, the air of the foundry is pure and clean, especially as compared with that usually to be found in shops of the kind. The wall back of the furnaces is of brick, a protection against fire. As shown in the illustration on page 1074, a large rack is suspended from the roof, near the hood, to hold the molds not in use, thus keeping the floor much clearer than would otherwise be the case.

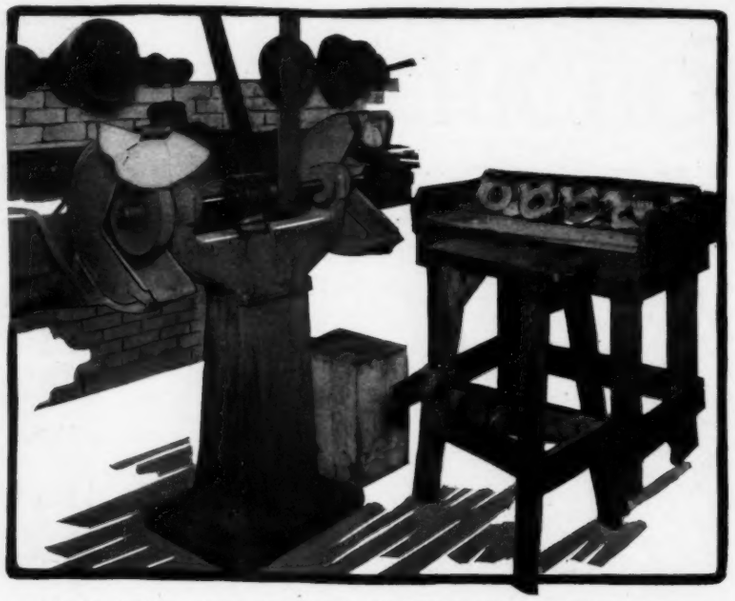


Different colors distinguish the various systems of pipes

After the parts have been molded they go to the raw material stock room in the main building whence they are issued, together with other stock, to the other departments by means of requisitions. The main building comprises two floors and a basement. The only connection between the floors is by means of the stair tower, which also contains the elevator shaft. All the floors are fireproof, fireproof doors are used and steel, concrete and brick are used as much as possible throughout the entire structure. Many large windows give ample light to the two upper floors and the ventilation is excellent all over the building. Electric lights supplement the light from the smaller windows in the basement. A comprehensive sprinkler system extends through all the departments, giving additional protection against fire. When the various pipe systems were installed

The racks are used for many purposes in the assembling department, as repositories for parts, means of transportation, etc.

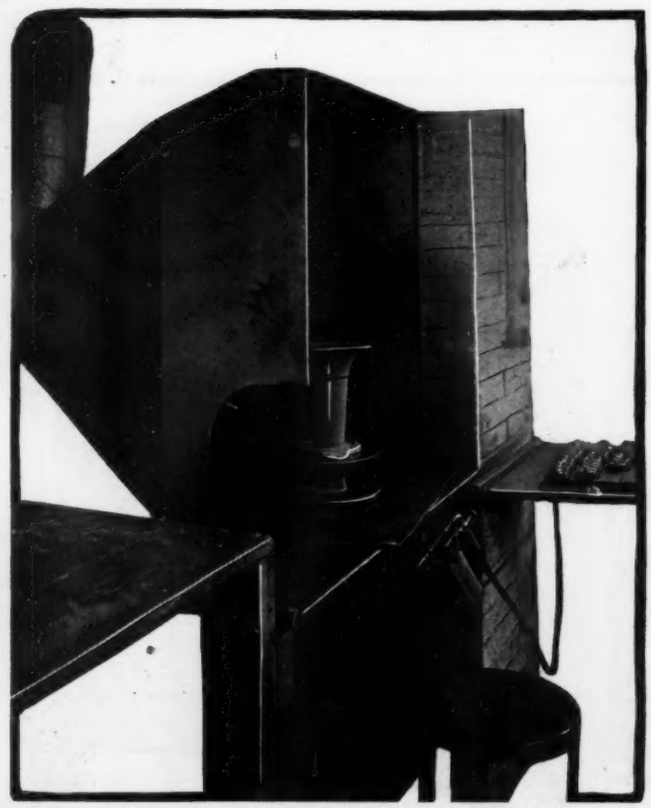
The metal barrels are easily moved by hand trucks.



In the buffing room, compressed air drains off the grindings, etc.

there was no way of telling them apart and when repairs were necessary a great deal of confusion and trouble occurred, with a consequent loss of time and money. To remedy this, the company had each pipe system painted a different color, the sprinkler system red, the gas green, the air pipes brown, the steam black and the water system blue, and posted a key to the colors near the conduit where all the pipes enter the building. The arrangement is shown in the illustration on page 1075.

The materials and parts are transferred from one department to another by the use of large sheet metal barrels and racks fitted with casters. The barrels have a knob on each side, adapting them to be lifted and wheeled about by hand trucks as shown above. The racks have several trays and these are often loaded two or three layers deep with parts, making the carrying capacity very large. The elevator is used for transferring the barrels and racks from one floor to another. The company uses 150 barrels and 100 racks. They cost from $4.25 to $5.90 apiece. The racks are especially useful as they may be used in a number of different ways and do not necessitate repeated loading and unloading as they pass from department to department. One use of the racks in the machine shop is shown in the illustration at the beginning of this article and one use to which they are put in the assembly department is shown on page 1075. They are just the right height for use at the various machines and for loading and unloading parts. The company estimates the saving in time and money effected by their use at 2 1-2 per cent. and has ordered more of them. To do away with the use of wooden boxes in the plant, metal boxes or trays have been adopted. Two sizes are used, the one shown in the illustration on page 1075 being 12 by 21 by 6 inches and the other 6 by 4 by 4 inches. The larger boxes cost 48 cents apiece and the smaller 20 cents apiece.



As the turntable revolves the enamel is sprayed on the horn or part with the device attached to the tube

The Racks Circulate Constantly

From the stock room in the basement the materials and castings go to the machine shop. Here the machines are ranged in orderly rows with all the tools used in their operation at hand. There are many little things here and there which point to the company's recognition of the fact that the best way to get the highest efficiency from the men is to make the work as pleasant for them as possible. Instead of having to stand at the machines the men are provided with steel stools of exactly the right height to enable them to perform their work most rapidly and with the least amount of effort. The usual method of working at the machines is shown in the illustration on the first page of this article, which depicts the operation of drilling screw-holes in the casings for the horns. A rack of parts is placed at the left of the machine and the pieces are transferred to a rack at the right as soon as the work is done on them. When they are all done the loaded rack is wheeled away to the scene of the next operation and the unloaded rack is shifted to the right of the machine to be loaded with the next batch of finished parts. Thus the racks are kept in constant circulation. In accordance with its policy of increasing the speed of production as greatly as is consistent with the best workmanship, the company has had all the machines in its shop speeded up from 25

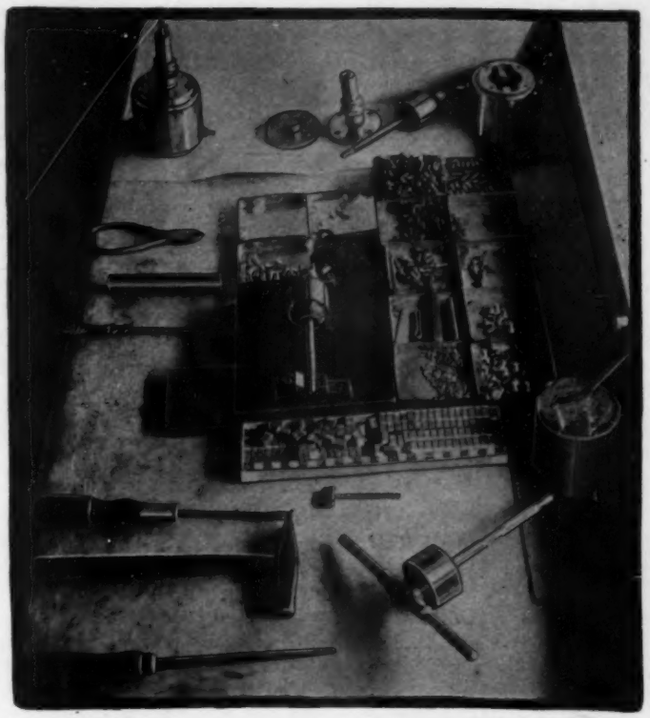
to 50 per cent. To keep the shop as clean as possible, sheet metal shields are fitted to the backs of all the machines in such a manner that practically none of the oil or cuttings is thrown on the floor. Brushes and waste for cleaning the machinery are kept in fireproof steel boxes in regular places where they can always be found. Even the brooms used for sweeping the floors have rings in the ends and hooks on the walls. A labor-saving method of counting the small parts, such as contact blocks, screws, etc., used in the machine shop is illustrated below. The parts are weighed in these specially designed scales, one part in the small tray balancing twenty in the next larger, fifty in the next in size and 100 in the largest. The small brass gauze pails hung on the post in the illustration are used for handling the small parts as they come from the machines, the gauze allowing the oil to drain off. The foreman of the shop has a desk on a raised platform so that he can see all parts of the shop and thus is able to tell how work is progressing on the various machines.

Compressed Air Is a Great Help

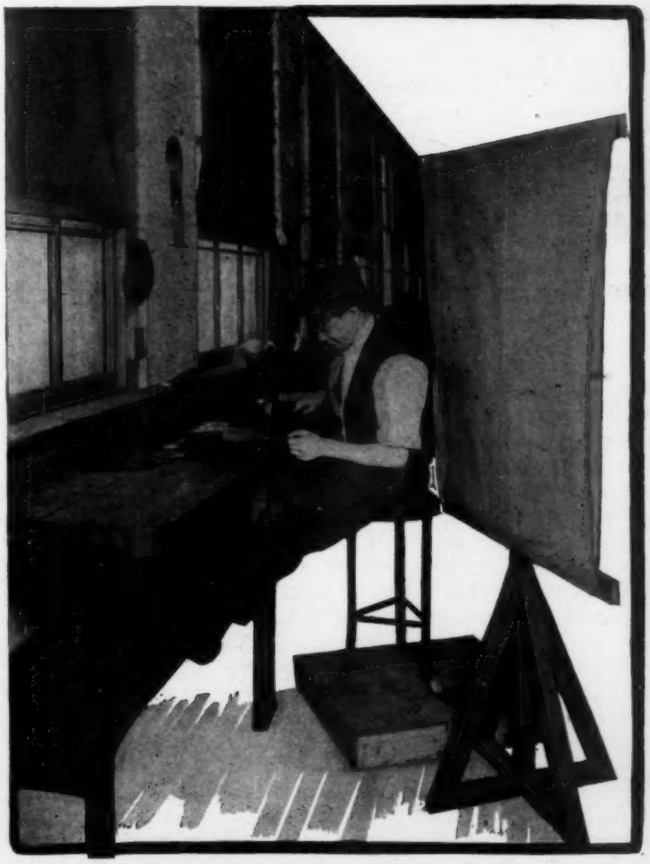
On leaving the machine shop the parts divide, the external pieces, such as the brass casings, going to the buffing and polishing department in the basement and the other parts to the assembling department on the second floor.

The buffing room is equipped with eight of the buffing machines shown in the illustration on page 1076. As soon as the new racks arrive they will supersede the wooden utensils shown in the picture. A strong air current produced by an air compressor draws away the lint and other waste matter that flies from the buffing wheels through the pipe shown in the illustration, which carries it across the ceiling of the basement and deposits it in a box outside the building whence it is carted away. In this way the air of the buffing room is kept clean and free from waste matter as much as possible. After the parts come from the buffing machine a boy rubs them off with a soft cloth to remove any particles which may cling to them. He is so adept at the operation that it takes him less than 5 seconds.

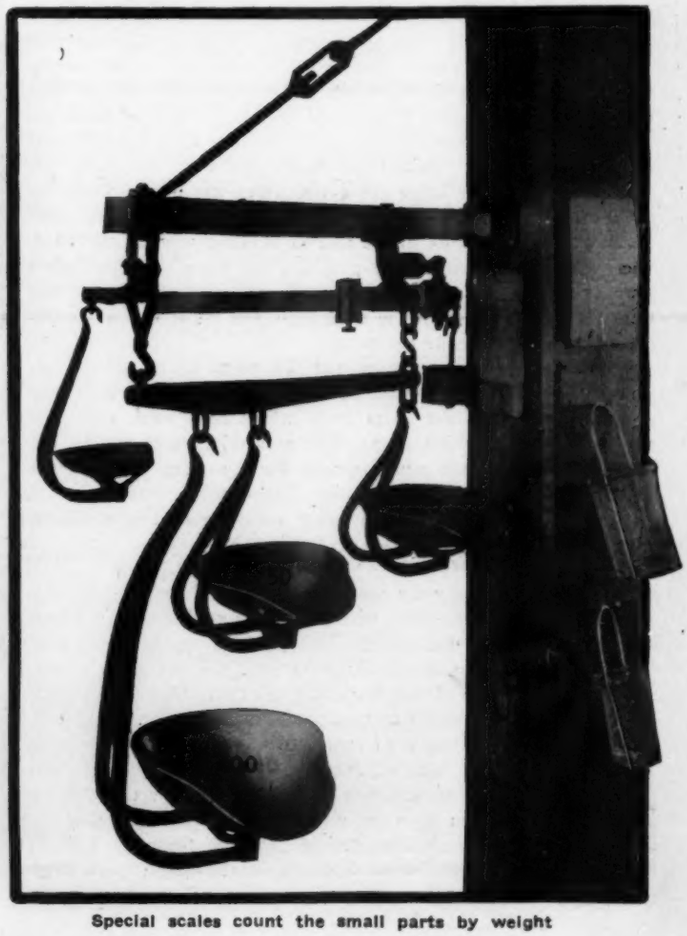
From the buffing and polishing room the pieces go to the electro-plating department, if the horns are to be given a special



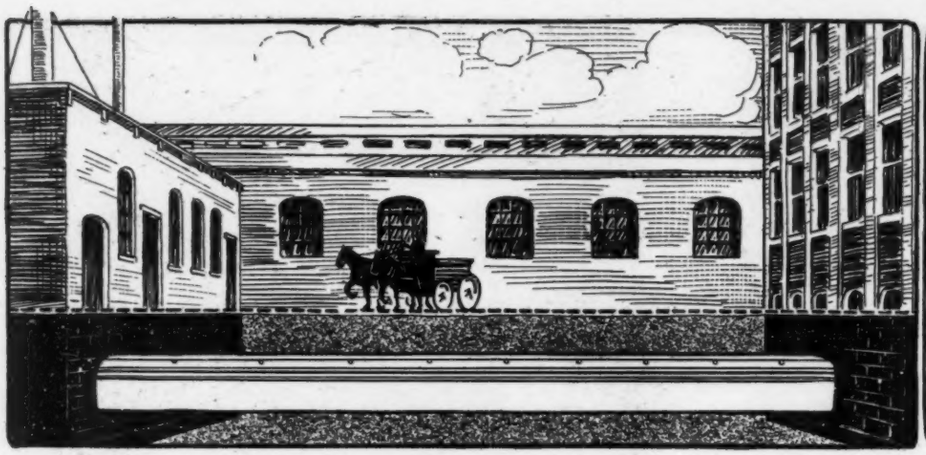
Motion study is evident on the motor assembler's bench where every tool and part is disposed to advantage



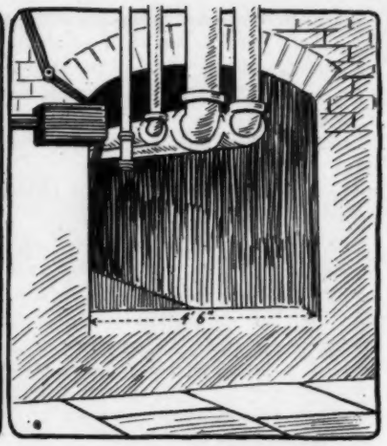
Green screens serve to regulate the light



Special scales count the small parts by weight



The only connection between the main building and the power house is through this tunnel.



Entrance to the conduit

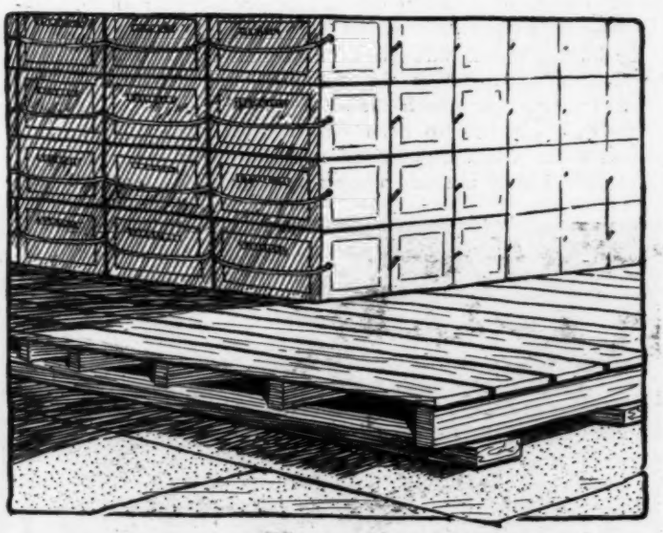
finish such as nickel, and thence to the enameling department. In the electro-plating department a clock-dial fastened to the wall and fitted with a dummy hand is used to mark the time at which the parts are placed in the plating solution so that the workman in charge can tell when the time required for the operation has elapsed. This is a little thing but it shows the presence of system.

By far the greater part of the horns are finished in polished brass or in black enamel, the preference generally being for a combination of the two, so that most of the external parts go direct from the buffing room to the enameling department. Here there are two large metal hoods built over small turntables. The parts to be enameled are placed on the turntable which rotates as a compressed air hose sprays the enamel on the part, the hood drawing off the waste matter and furnishing a draft for the even application of the enamel. The entire operation of painting a horn takes only 15 seconds. There is a considerable waste of enamel in using this method of painting but the saving in time is so great and the results are so satisfactory that it really constitutes a noteworthy economical factor. When the parts are taken from the turntables the enamel is wiped off the portions which are to retain their brass finish and then the parts are placed in one of the large gas ovens which are used to bake on the enamel and to harden the varnish on the numerous small parts which are dipped in varnish in another part of the basement. When the pieces are put into the oven the time when they should be taken out is marked on the door, and, if the things are put in late in the afternoon, the night watchman removes them at the time indicated.

From the enameling department the parts go up to the assembling and testing department on the second floor where they are assembled with the parts from which they were separated on leaving the machine shop. The assembling and testing department takes up the whole second floor, making it one great room with plenty of light and air. The benches extend around all four sides, none of them being away from the windows.

Cleanliness Is Characteristic

The floor-space along the center of the room is empty save for numbers of racks filled with parts, finished horns, etc., which are grouped around the posts, so that they are not in the way. The floor is kept immaculately clean and the company, recognizing the tendency of the workmen to promiscuous expectoration, has provided individual cuspidors for the use of the men at the benches. In the work of straightening the diaphragms used in the horns, a front light is necessary, so green screens mounted on standards are employed to control the light for the "woodpeckers," as the men who tap away at the disks are called by their fellow workmen. The method of using these, as well as the construction of the work benches, is shown on page 1077. As 80 per cent. of the manufacturing energy of the plant is put into the construction of the motors used in the horns, the company has tried various experiments to facilitate turning them out. After spending a considerable amount of time and money, however, it was found that it is most satisfactory to do the winding of the motor parts by hand. The men are paid by the piece for this work and one core winder is so adept that he makes $18 or $20 a week, where a less expert operator would



Provision is made for a flood in the basement

make only $9 or $10. Special racks are used for holding the motors and parts in different stages of completion and racks padded with flannel for the finished horns on the testing bench. The illustration on page 1077 of the bench on which the motors are finally assembled is especially interesting as showing the application of the principles of motion study. The appearance of the small parts and the tools reminds one of a watchmaker's bench, and, indeed, the work of assembling the motor is not unlike that of putting a watch together. It requires a great deal of application and considerable care. Yet the man who does this work turns out from fifty to sixty finished motors a day. As may be seen in the illustration, he has his tools, parts, etc., so disposed that the minimum effort and time have to be expended on each detail of the operation. After the motor, casings and other parts have been assembled, the horn goes to the tester's bench at one end of the room where the foreman of the department tests it. The shrieks and wails that sometimes come from that part of the room are little short of appalling but never seem to bother the other men who placidly go on with their work. The tester can tell in a second whether the horn

is mechanically perfect or not by the quality of the sound. If there is anything wrong with it, he takes it apart, locates the trouble and corrects it. When he is sure that a horn is in good condition it is placed on one of the racks and sent down to the shipping department in the basement.

The company makes it a point to always keep about 3,000 finished instruments, boxed for shipment, in the shipping department. A few years ago the water backed up in the basement and spoiled a number of instruments. To prevent a repetition of this, the company installed the platform illustrated on page 1078 which lifts them 6 inches above the floor. The floor itself is adapted to drain off water readily, being composed of bricks set up on end and covered with concrete and having a gutter running around the wall with an outlet to the sewer. Besides this, there is a powerful pump on the first floor for use in emergency. The illustration shows the boxes in which the horns are shipped supplied with a rope handle. Every horn sent out from the factory has a tag attached to it which sets forth the conditions under which the instrument is marketed, prescribes the price which shall be paid for it and specifies such other particulars as are necessary for the protection of the manufacturers. A label bearing the same provisions is pasted to the outside of the box in which each horn is shipped. Some time ago the company had a number of complaints that horns were arriving at their destinations in a damaged condition. To make sure that it was not due to faulty packing, several horns, packed in the usual way, were shaken about as much as they would be likely to be with any amount of care in transportation. When the boxes were opened the horns were found to be unharmed. Accordingly, it was decided that the damage incurred must be due to rough handling in transit, and, when a number of packed horns were thrown down a flight of stairs, it developed that the bells were dented exactly as told in the complaints. As a result, the company adopted the rope handle on the boxes and since then have had no further complaints. The rope is inexpensive and saves many times its cost in the course of a year.

Precautions Cheapen Insurance

Another economical device which is used in the basement is a little spring which makes a spring suspension on each of the tungsten lamps as shown in the illustration below. Formerly these were often broken by the vibration of the ceiling from the machinery in the shop overhead. Not a single lamp has been broken from this cause since the adoption of this expedient. To save time and trouble in packing, a chart is fastened to one of the posts in the shipping department, which gives the size of the box to be used for each type of horn, bumper, etc., produced by the company. Little things like this do a great deal in building up a factory system and save more time and expense than is generally realized. As a large amount of excelsior is required for packing it would render the danger of fire in the shipping department very great were it not for the fact that a metal-lined box has been provided to contain it. This box is shown at the foot of the page with an enlarged view of the fusible connection which allows the lid of the box to drop at once in case of fire. The use of this box enables the company to secure much lower insurance rates than the insurance men could give if the excelsior were not protected against fire. The difference in rates is between 25 and 50 per cent. according to officials of the company. In the course of a year the saving effected by this means amounts to a sum which amply repays theh company for the expense and trouble entailed.

Common Sense Best After All

The company is especially careful to guard against fire in every possible way. The plant is equipped with a very large Klaxon horn which serves as an alarm. It is tested every noon, a certain number of preliminary blasts being used to indicate a test. Besides this, there is a regular fire-fighting organization, each man having a certain post and no one else being allowed to interfere with him in any way. As oily waste and similar refuse from the machines increases the fire risk besides giving the shop a dirty appearance it is swept up every day. Three men are employed to keep the plant clean and neat and they go through a regular daily routine, first cleaning up the office, then the first floor, second floor and basement. After that they go through the power house and foundry. The cuttings, filings, etc., which are swept up are sold, the money saved in this way being almost enough to pay for the cleaning system which renders working conditions so much more pleasant in the factory.

The difference between the plant of a firm which recognizes the benefits to be derived from the development of some regular system and that of one which is satisfied to follow slipshod methods is too obvious to render a comparison necessary. The real value of the right kind of system is that, although its aim is the increasing of plant efficiency expressed in terms of production per unit time, it does not go about it in the wrong way, by attempting to force the workmen to work faster or longer, but seeks it by the improvement of working conditions and the adoption of scientific methods of facilitating manufacture.

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Pole Setting by Power Trucks

One of the most interesting developments which have followed the use of winch power trucks by the New York Telephone Company, says the New York *Telephone Review,* has been the installation of a derrick for setting telephone poles. Whereas the old method required from six to eight men and time eleent of from 10 to 20 minutes per pole, the new method requires the services of only two men to hold the butt of the pole in position while te chauffeur operates the winch in lifting the pole and dropping it into the hole, the time element in this case being from 2 to 5 minutes, or in other words, the cost of setting the pole is practically eliminated.

A satisfactory hole digger to be used in conjunction with this pole derrick is one of the anticipated developments which will materially reduce the expense of building pole lines.

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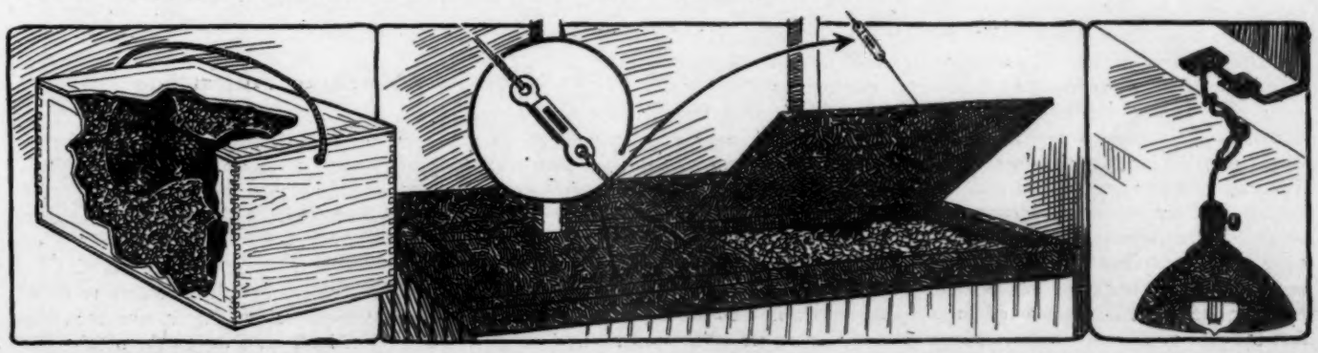
The article on the "Use of Paraffin as Fuel," in the May 2 issue of THE AUTOMOBILE, was reprinted from *The Motor* (English) of April 16.



The way each horn is packed for shipment. Excelsior box in the shipping room has protecting fuse. Spring suspension saves lamps

Gasoline a Grade of Naptha; Carbureter Takes An Excess of Air; Cannot Waterproof Mohair; Method of Weighing an Automobile; Locating a Deceptive Knock; Why Gasoline Becomes Stale

Gasoline a Form of Naphtha

EDITOR THE AUTOMOBILE:

(1) Please inform me through THE AUTOMOBILE if I could get the same results with naphtha as with .65 Baumé gasoline in a 45-horsepower Oakland car. Also kindly let me know if naphtha would be injurious in any way, and if so, why?

(2) What can I use to refinish a brass steering post?

Youngstown, O. F. R. JONES.

(1) When you use .65 gasoline you are using what is called automobile naphtha. Automobile naphtha runs from .65 to .68 test. Below this and running to .58 to .65 is benzine, which would be unsuitable. Naphtha, it must be remembered, is a general term covering all the more volatile petroleum distillates.

(2) If the plating is worn off you will have to take the post out and have it replated. This is an electro-plating job and is not one which you can do very well yourself. It takes 2 days for an electro-plating concern to do the work and the cost varies from 75 cents to $1.50. It is impractical to attempt to put the brass on by hand. The results are poor and the process expensive.

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Excess Air Used in Carbureter

Editor THE AUTOMOBILE:

Would you kindly tell me if the carbureter in an automobile motor takes just the required amount of air to form a perfect and ideal mixture when the car is working under ordinary running conditions?

Syracuse, N. Y. C. C. CROSS.

Under average running conditions the amount of air taken into the motor cylinder with the gasoline vapor is from 30 to 45 per cent. in excess of the amount really needed for perfect combustion. The reason for this is that if there was only just enough air for the gas the mixing function would have to be perfect or else there would be a considerable quantity of unburnt products in the exhaust. By providing an excess of air there is sure to be a greater part of the gasoline which has become thoroughly mixed with the air and there is also sure to be enough oxygen present to support the complete combustion. Besides this reason the motor is worked at a lesser temperature and there is less danger of premature ignition due to the heat of the gas when compressed as it is in the cylinder of a motor. As a general rule the higher the compression, the leaner the mixture. This is well brought out in the automobile motor where there is always a leaner mixture used when the car is traveling rapidly along a level road than when slowly ascending a hill. The compression is always better at high piston speeds because there is less time for the gases to escape around the rings. There is also less loss of heat per stroke of the motor because there is less time allowed for the escape of the heat. Another feature which has a bearing on this matter is the fact that the rate of flame propagation or combustion is higher when the mixture is lean or highly compressed.

Wants to Waterproof Mohair

Editor THE AUTOMOBILE:

Would be obliged if you would answer the following questions through Letters Answered and Discussed:

(1) I would like to know if there is a preparation which could be applied to the surface of a mohair top which would make it waterproof. The top on my car leaks badly in a heavy rain.

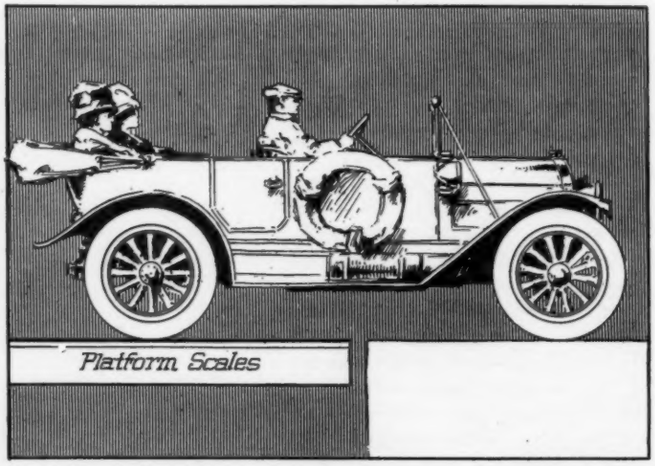

Fig. 1—Weighing the load on the rear axle of a touring car

(2) Which is the best material for a top, mohair or Pantasote?

Nevada, Mo. RAYMOND E. BELKNAP.

(1) When the inner lining of rubber on a mohair top becomes oxidized it will start to leak. There is no way of waterproofing one of these covers when the leak has started. It will be necessary to buy a new top. Painting it or any other such method is, of course, impractical.

(2) Either of these two materials is excellent for a top and will give very fine results. They will both last a long time if well cared for.

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How to Weigh an Automobile

Editor THE AUTOMOBILE:

In your recent article on the care of tires, wheels and rims I noticed that in the tire tables some of the makers based their inflation pressures to loads per axle rather than on the weight of the whole car. Would you kindly explain how it is possible to obtain this figure?

Elizabeth, N. J. B. C. C.

In weighing the load on each axle it is only necessary to drive the front wheels of the car on the scales, Fig. 2, and then the rear wheels, Fig. 1. The correct load per axle will be obtained if the car is in a horizontal position while being weighed. If there

is a slope leading up or down to the scales, one end of the car will have to be jacked up until the car is level. When the weights are taken the car should be loaded fully. If it is of the touring type, all spare equipment and a complete load of passengers should be in the tonneau. The weight per wheel will be one-half the load on the axle carrying the wheel. Every car owner should be thoroughly familiar with the weight of his car or else he cannot hope to keep the tires properly inflated. In every railroad town there are public scales so that it is not difficult for the automobilist to obtain these data which aid materially in keeping the car-operating expense down as low as possible.

Locating a Deceptive Knock

Editor THE AUTOMOBILE:

Not very long ago my motor began to develop a marked knock. The strange part of the knock was that it would never show on level ground, but would develop after starting up a hill. If I throttled down the motor the knock would disappear. I took down the motor, examined all the bearings, cleaned the carbon from the cylinders and put the motor into first-class condition all around. I then assembled the motor, put it in the car and started out. After running some time I congratulated myself that the knock had disappeared. The car had run about 500 miles when, in climbing a hill, a faint sound indicated that the trouble had again developed. I took the car home and again took down the motor, giving everything a thorough cleaning, but could find no sign of wear. After re-assembling the motor, I found that the knock had disappeared. I was at a loss to account for this as the motor had not been dirty when I took it down and the little cleaning I had done did not seem to me to be sufficient to cure the knock which, if left alone after it had once developed, would be so loud that it could be heard for some distance.

Thinking that perhaps the compression of the motor was a little too great, I placed a 1-2-inch fiber gasket beneath the cylinders to lessen it. The result was that the motor ran again for about 500 miles without the slightest sign of trouble and then the knock re-appeared. By this time I was at my wits end. I took the motor down and put it together again without touching a thing besides the bolts necessary in taking down the motor. The result was that the car again achieved its 500 miles without any signs of the old trouble, but it again developed. If the ears were covered so that the knock could not be heard the car would travel on without a jar and the motor would seem to be in prime condition. When traveling on level ground it would not be in evidence at all except when accelerating quickly. I finally resolved to take the car to a friend of mine who has considerable skill with gasoline motors, having been at one time in the repair business.

After taking down the motor to look things over he noticed that the piston rings were rather light. He did not attach any significance to this at the time, but tightened up on all the connecting-rod bearings at both ends so that there was absolutely no lost motion at either end. He then took the car out and ran it and claimed that the knock had disappeared but told me to let him know should it develop again. It did so in the regulation time. Taking down the motor and trying the bearings, a slight looseness was detected, showing that there had been some wear. The weak piston rings were remembered and it was finally decided that the trouble was a sort of side slap of the piston which could be cured by heavy rings. This proved to be the case and there has been no knock since, the heavier rings were fitted. The reason that the car could run about 500 miles without the knock was that the bearing would hold after being tightened for that time. Did any of my brother subscribers ever have a similar experience? If so, I should like to hear of it as this is the only time I ever heard of anything like it.

Albany, N. Y. J. E. S.

Does Gasoline Become Stale?

Editor THE AUTOMOBILE:

I have heard that gasoline which has been allowed to stand for some time becomes stale and worthless for use in an automobile. I do not believe this is true as I had some gasoline in storage for a long time, nearly 8 months, and then used it in the car. The motor worked just as well with this gasoline as it has with any that I have ever used. I had the gasoline in a 5-gallon can and kept it in a rather warm room. I had forgotten that I had the gasoline and when I found it after the time had elapsed I was told not to use it as it had probably gone stale after such a length of time. The results obtained certainly did not show any tendency toward staleness on the part of the gasoline.

Merrick, N. Y. H. B. T.

The reason that your gasoline escaped the damage it would have incurred under ordinary conditions was because you happened to have kept it in an air-tight vessel. If you had not done so the more volatile constituents of the gasoline would have passed off, owing to evaporation. The residue in such a case has such a low test that it is of no use in the carbureter and cannot be used successfully in an automobile motor that is adjusted for the better grades of gasoline. The same effect may be noticed in a carbureter where the gasoline has been allowed to stand for some time. For this reason, if the car had not been used for an extended period it is always well to drain out the carbureter so that it will not be hard to start the motor. Gasoline which has gone stale has a bad odor, but is useful for such purposes as removing grease stains and dirt from the hands or motor parts.

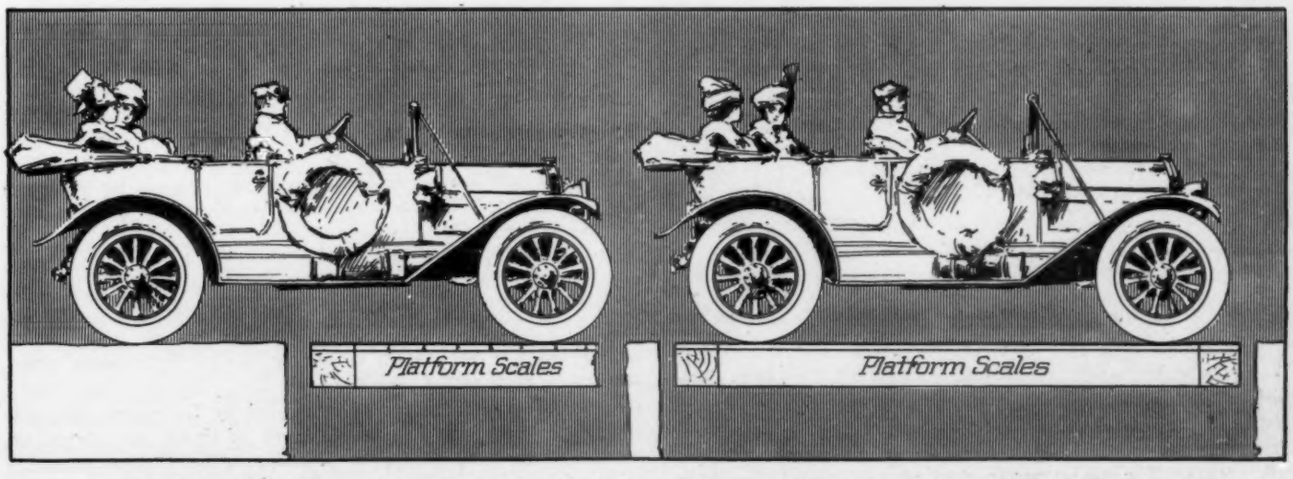


Fig. 2—Weighing the front axle load and weighing the whole car. This must be done when fully loaded

Economizing on a Car's Running Expenses

How the Neglected Points of Adjustment Affect the Owner's Pocketbook—Buying Cheap Lubricating Oils and Greases Is False Economy—Power and Money Expended in Unnecessary Places

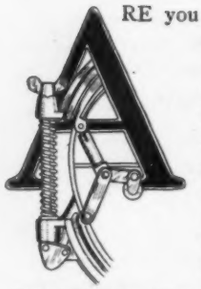


Fig. 1—Brake drag adjustment

ARE you giving your car a square deal? Are you allowing it to develop the highest efficiency of which it is capable? Perhaps you have waded through masses of instruction books filled from cover to cover with the best of advice. You have agreed with every word that was contained therein, but when one day you took the time to measure how many miles a gallon of gasoline would carry the car and then heard of the superior results that someone else was having with a similar car, it might have dawned upon you that your running expenses are far in excess of what they should be. A man in charge of the New York service department of one of the largest automobile manufacturers in the world recently made the remark that he wished he could have a very small percentage of the amount of money that was needlessly wasted on gasoline in New York City alone.

A trip through the service buildings of the various automobile concerns and a short interview with those who are daily in contact with the cars which are brought in for repair as well as the owners of these cars, will disclose some interesting facts. It would well repay the owner who is not mechanically expert to have a heart-to-heart talk with one of these men who have daily experience with every form of automobile trouble that can be conceived.

One of the greatest money losers for the automobilist is a false sense of economy. Take, for instance, the subject of oils and greases. It is the greatest mistake to purchase cheap lubricating oils. The lubricating properties of the oil are not what they should be, they last for a shorter length of time, carbonize and give all the trouble from which good oil is free. "Buy the best oil that you can get," is the unanimous advice of the experienced. A lesson may be learned from the oil companies themselves in this respect. On all the delivery wagons of these concerns the very best oil is used and it is used because these people know that they are saving hundreds of dollars by using it. Inferior cylinder oil should be avoided as a pest. For all-the-year-round work choose an oil having the following tests: Specific gravity 28 to 32 degrees Baumé; minimum flash point 400 degrees Fahrenheit; fire test 50 degrees above flash point; viscosity at 100 degrees Fahrenheit not over 300 seconds on the Saybolt Viscosimeter; viscosity at 210 degrees Fahrenheit from 40 to 50 seconds on the same meter. The carbon residue should not be over 0.50 per cent. This oil must be guaranteed a pure mineral oil, free from any adulterant or addition. It is easy for any oil company to meet these requirements and they do so in their best grades of oil.

Don't Throw Away Cylinder Oil

Apropos of the subject of oils a tip which is a money-saver may be mentioned as it comes from a man who has made a life-study of the subject. The cylinder oil which is drained from the crankcase of a motor having a circulating system after every 500 miles of use may be used for the gearset if mixed with grease. The oil is merely charred and is slightly stringy from the wax which has been formed in it. This wax-like constituency is the very qualification necessary for a gear lubricant in that it holds the oil to the gear. The oil should be drained into a pan, mixed with grease until the mass assumes the constituency of the regular transmission lubricant familiar to all automobilists, being neither liquid nor solid.

Cars which have force-feed lubrication afford an excellent opportunity for the careless owner to throw away money. The mechanical oilers generally employed with force-feed lubrication contain a number of small plunger pumps. Each of these can be regulated independently so that none of the bearings need receive any more oil than is necessary to keep it in prime condition. The flow of oil from these mechanical oilers can be judged from the dash either by means of a series of sight-feeds, a single sight-feed or an oil pressure pump. When the oil

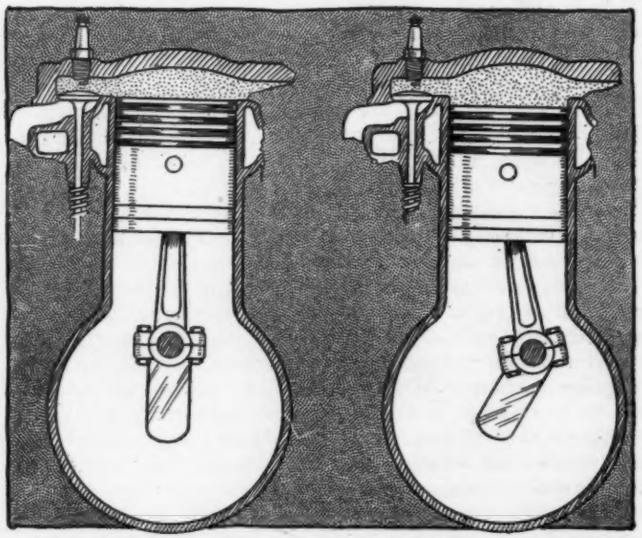


Fig. 2—Different compression space with late and early spark

flows through these it is generally only evidence that the oil pump is working properly, but it does not show how much oil each bearing is receiving except on a very few cars and these are mostly of foreign manufacture. On the oiler box itself, however, there is another series of sight-feeds which show exactly what each bearing is getting, and these should be watched, in the first place for the purpose of knowing that none of the bearing is abnormally lubricated; secondly, the whole oil supply on a force-feed system should be governed by the country in which the car is being used. The amount of oil used in city work should be considerably less than that used on a touring trip. On the other hand, there is no need for the owner of a car paying for the amount of oil he uses in the country while the car is performing service in the city. Write to the manufacturer of your car, if it is lubricated by force-feed, and get the benefit of his experience in terms of drops per minute or strokes of the pump plunger or pressure on the oil pump gauge.

It is always an interesting point with a car owner to know

how many miles he averages per gallon of gasoline. This knowledge is useless unless it be an incentive for him to better the performance of his car. There are two great sources of gasoline waste. The first is poor carbureter adjustment. Too rich a mixture will, naturally, cut down the performance of the car to a considerable extent when this is figured on an economy basis. The technical representative of a large carbureter concern stated that 25 per cent. of the drivers of automobiles are using a richer mixture than is necessary. This is bad economy in two ways. First the amount of gasoline used is increased per mile and secondly the thermal efficiency of the motor is greatly reduced. More gasoline is taken into the cylinder of the motor in a unit of time. The richer charge is a slower burning charge, hence unburned products, having a high thermal value, pass out through the exhaust pipe. For a slight increase in the richness of the mixture there is a large drop in economy and efficiency which is partially paid for every time the car stops to take on gasoline. Have the carbureter set by an expert and then let it alone, is the advice of every car and carbureter manufacturing concern. If the services of an expert are not available the next best thing is to adjust the carbureter yourself and, when doing this, favor leanness of mixture to the greatest possible extent. Tinkering with the carbureter and making many changes of the adjustment will never lead anywhere except probably to the condemnation of a perfectly good carbureter and the purchase of another which may or may not be better for the car on which it is to be used.

The second great cause for a low mileage per gallon of gasoline is the habitual traveling on a retarded spark. Every automobilist knows that there is an ideal position for the spark for every position of the throttle and road condition but very few know what that position is in every case. The first qualification of the expert driver is that he knows how to manage his spark. The spark should be advanced as far as possible without allowing a knock to develop in the motor. The evil effects of a late spark are very much the same as those of too rich a mixture. A study of Fig. 2 will show to a great extent what happens when the charge is not fired until late in the stroke. The compression has dropped in the first place so that the charge will not develop as high an initial pressure upon which the horsepower of a gasoline motor is directly dependant. Secondly, the charge, not being as highly compressed, will be a slower burning one; and thirdly, the time allowed for the complete combustion of the gas will not be as great, thus allowing a greater volume of unburned products to pass off through the exhaust pipe. Since the pressure has not dropped as low as it would if the gases had more time to expand within the cylinder, additional power will be thrown away through the exhaust pipe. Besides all these facts the tendency of carbon troubles to develop in the motor, owing to overheating, is also great and must be taken into account as it costs time and money to have the carbon removed from the cylinder.

Poor compression is another money-loser, because you are paying for power you do not get. A puzzling case of lost compression was noted recently. The owner of a 30-horsepower, four-cylinder car noticed that it was losing its hill-climbing capacity and showed all the symptoms of poor compression. He took the car to a repair shop and had new piston rings fitted. The valves had been ground just before the trouble was noticed but when the motor was again assembled and placed on the car the same trouble was observed. After puzzling over the matter for some time the conclusion was reached that the trouble lay in the poor seating of the valves and that regrinding was necessary. Just before having this done, however, he talked over the trouble with a friend who happened to have some experience with gasoline motors. In response to an inquiry as to the condition of the valves the friend learned that the valves had just been ground and he immediately suspected what turned out to be the true cause of the trouble. Naturally the valves had been adjusted when the motor was cold and no clearance had been allowed on the adjustment. When the motor heated up after having been run for a time the valve stem expanded and held the valve off its seat. It is a simple matter to overlook this adjustment, the clearance allowed being a mere matter of 0.004 inch. A diagram of this phase of valve adjustment is shown in Fig. 3 with the handy method of determinging this clearance by means of a card. This has been often mentioned before and is of proven merit.

Of course, bad piston rings should be replaced. The average cost of a piston ring is somewhere in the neighborhood of 50 cents. This amount of money is lost in power in a very short time and when the small cost of replacing the rings is considered there is no reason why even a perverted sense of economy should keep the car owner from replacing them.

Careful Wiring Saves Current

To get the most out of the ignition system many points of seemingly minor importance should be kept in mind. For instance, an amateur repairman will fit a metal tube for the purpose of containing the high-extension wires that lead to the spark-plugs. In this way the current is very apt to leak from the wires. This difficulty is eliminated to a great extent by enameling the tube. It is better, however, to either use a fiber tube for the wires or to separate them in some such manner as is shown in Fig. 4. The contrast between this and the metal tube method is also shown in the illustration. The wires are held taut and at the same time far apart without the danger of electric interference with the high-tension current. A weak spark is bad economy whether it is due to leaky insulation, weak magnets in the magneto, poor vibrator adjustment or any of the sources of this condition. The combustion is not properly started, the rate of flame propagation is slower, and, as a result, the exhaust takes place a little earlier in the stage of combustion than would be the case were the ignition more efficient. This represents a money loss also. The gasoline is used, so is the electric current, but the full power is not developed. The dollars and cents of the car owner are not turned into as much power as possible. Part of them, which should go toward carrying the car on its way, travel through the exhaust as waste.

All these come in the list of troubles which do not cause a knock or a misfire, but still cut down the economy of the car. The most common cause of lack of efficiency is the fact that the gap at the plug electrodes is not of the proper size. If it is too small the motor will fire at the proper time and will run well, but the spark will be weak. If the gap is too wide and

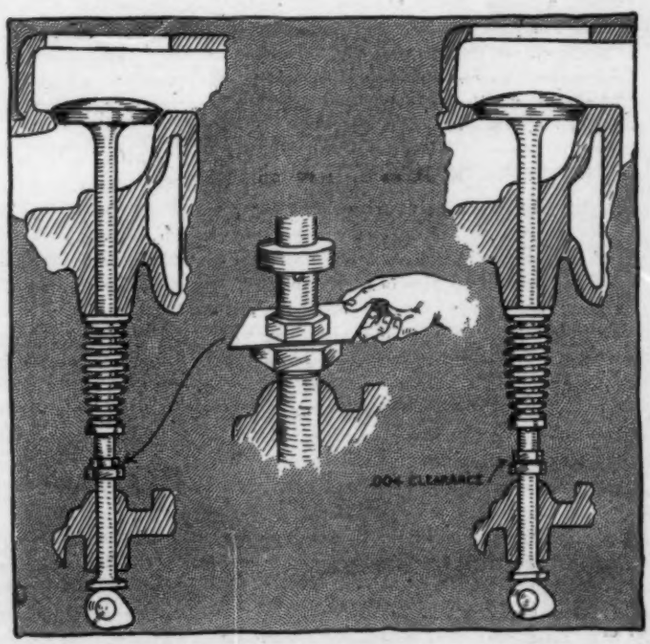


Fig. 3—Valve held off its seat and correct adjustment

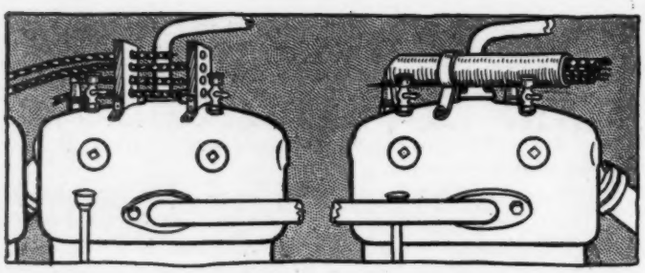


Fig. 4—Two ways of holding wires above the cylinders

the magneto is of the latest design and is in good condition the spark will jump the gap even at low engine speeds. The spark which is obtained will not be nearly as efficient, however, as a shorter and fatter spark. This may all sound like hair-splitting, but it cannot be denied that running expense will be reduced if these minor points are given careful attention. For all-around purposes a gap of .02 inch has been recommended by experts.

Much power is lost through bad adjustments which have been made on the car by incompetent mechanics and by others without skill who have needlessly tampered with the adjustments on the car. The brake adjustment on many cars is abused. In an endeavor to eliminate all lost motion, the brakes are taken up to such an extent that they drag on the drums, exerting a braking effort when none is needed. It would pay to jack the car up and revolve the wheels to note if there is any resistance. In Fig. 1 a brake drag adjustment is shown. The spring is for the purpose of holding the brake shoes off the drum, while the wing-nut acts against this spring, regulating its tension and the distance that the brakes are held away from the drum. A little lost motion in the application of the brake pedal will do no harm and it is desirable in the light of the enormous amount of power it takes to overcome even a slight pressure of the brakes upon the drums.

Similar to the dragging brake is the slipping clutch. It manifests itself mostly on hills where the drag of the vehicle is greater upon the motor than upon level ground. Advice concerning the adjustment of the clutch has been frequently handed out to the car user by the manufacturers, and the clutch adjustment of each make of car is, or should be, familiar to its owner. The causes of the slipping are a collection of oil on the surface of the leather, if it is a leather-faced cone clutch, and, in all types, a weak spring tension. A badly slipping clutch will be readily noticed, while a slight slip will often escape notice. Alertness on the part of the driver is the only thing that can cut down this source of waste before it develops into a bad slip. If the trouble be oil a handful of fuller's earth spread upon the leather will cure it.

Keep an Eye on the Bearings

Tight bearings consume a needless amount of power. The wheel bearings, especially, should never be too tight. They not only wear, but also consume an unnecessary amount of power. If the owner of the car adjusts his own wheel bearings he should remember that the bearings should have a barely perceptible play. In the cup-and-cone type, for instance, if the wheel is jacked up clear of the ground, as it should be when the adjustment is made, an almost imperceptible play should be observed at the rims. The play should be no more than the mere feeling that it is not tight. After the adjustment has been made and the nuts tightened, a check may be made upon it by spinning the wheel free, if it is a front wheel. The wheel should swing like a pendulum several times before coming to rest.

The fan bearing may also be too tight. In that case the fan belt will slip and consume a needless amount of power, forming another source of money loss. Beyond the loss of power through the fan belt the cooling efficiency will be impaired, the motor will run hotter than it should, allowing the water to boil away, the lubricating oil to be used up rapidly, and a bad state of affairs will exist throughout. When ascending a hill this trouble will generally be detected if the automobilist will pay attention to the symptoms. A small thread of steam escaping around the radiator cap at the end of a long climb will show that there is something whong and once this is known it is generally an easy matter to hunt the trouble down.

It is not always the motor that troubles the owner who desires to have the delightful combination of a sweet-running and at the same time economical car. The clogged mufflers that are carried around behind otherwise well-adjusted motors are very numerous. A clogged muffler can use up 5 horsepower when the motor is developing 30. Ordinarily a clean muffler, if well designed, would not use more than 2 horsepower. This leaves a difference of 3 horsepower which could just as well be spent in propulsive or reserve force. Moral: Clean out the muffler once a season.

All these points should be taken into consideration by the motorist. There is something else which adds to the cost of upkeep of the car besides the tires. Neglected minor troubles, not large enough nor serious enough to develop any of the symptoms commonly known to all those familiar with the automobile, are responsible for a large part of the annual outlay. It takes gasoline to make the power that is used in overcoming the handicaps due to bad adjustments and gasoline costs money. Dollars and cents saved mean more than empty words and the amount that can be saved annually by the careful car owner would go far towards paying the running expenses of an extended vacation tour.

Harking Back a Decade

FROM *The Motor Review*, May 8, 1902:

Probably one of the main reasons why the development of the hot-tube ignition engine for automobiles has not progressed in this country is that it is not as susceptible to speed variation as the electric ignition motor.

Cortland F. Bishop had a disagreeable experience recently while passing through the Posilippo tunnel in northern Italy. It was very dark in the tunnel and Mr. Bishop was running slowly when the car was beset by a band of peasants armed with clubs and Mr. and Mrs. Bishop and the chauffeur were badly beaten.

King Edward's new car, a 22-horsepower Daimler, is on exhibition at the London Automobile Show. The car has been sharply criticized for its external appearance, but the British experts have much praise for its mechanism. It is equipped with a pedal-actuated friction clutch and train-balladeur of gearing, giving four forward speeds and reverse.

The American Automobile Association has adopted the following rule with reference to violations of the speed laws: "*Resolved*, That any driver, owner, nominator or manufacturer of any motor vehicle who shall be disqualified or suspended by any club belonging to the A. A. A. shall be disqualified or suspended by this association and prevented from taking part in any event held by any club belonging to this association." About thirty participants in the recent endurance run on Long Island were disqualified at the conclusion of that run because of too much speed.

The Goodyear company has finally triumphed in the long litigation instituted by the Consolidated Rubber Tire Company for infringement of the Grant patent. The decision holds the patent invalid.

There were twenty-one clean scores in the Long Island Automobile Club endurance run. Of these seventeen were gasoline cars and four steamers. There were eighty-two entries and sixty-six starters; twenty-nine were disqualified and thirty-seven received awards of merit.

Protest has been made by the Automobile Club of Philadelphia as to the proposed city ordinance limiting the speed of automobiles within the city of Philadelphia to 7 miles an hour.

Exports of automobiles and parts for March were valued at $88,350. For 9 months the exports totaled $517,532.

The Ideal Automobile for 1913

Some of Our Readers' Conceptions of What Next Year's Car Should Be

Ideal Completely Described

WASHINGTON, D. C.—Editor THE AUTOMOBILE: The ideal car of 1913 should have a tread of 56 inches with a wheelbase of 124 inches for a runabout. The tires should be 36 by 4 1-2 inches with quick detachable, demountable rims. Non-skid tires should be used on the rear wheels. The alloy steel frame should be of channel section, inswept and dropped over the rear axle, and dropped slightly from the front wheels, reinforced.

The motor should have three-point suspension on an incline to give straight-line drive. It should be a four-cycle, four-cylinder, T-head design, with large valves and an even water-jacket. The bore should be 4 7-8 inches and the stroke 5 1-2 inches. The engine speed should be 175 to 1,500 revolutions per minute and all parts should be machine finished and polished, and the valves encased in a buffed brass removable case. The crankshaft should have three large bearings with removable brasses on the main and crankpin bearings. The crankcase should have large removable plates inside to render all bearings accessible. Priming cups, two sets of spark-plugs, compression relief and valve plugs large enough to admit of removing the valves should be features of the engine construction. The valve seats should have ample surface to insure tight seats and to allow for grinding.

The oiling system should be both splash and force-feed, operated by a reciprocating, cam-driven pump. Separate reservoirs in each crankcase with well grooves leading to the next ahead and with a common return should be included. The make-up should come from the pump, and the main bearings and the connecting rods should be oiled by force-feed. There should be a sight feed on the dash and an auxiliary hand pump on the seat.

As to the cooling system, there should be a large cellular radiator mounted on trunnions fastened to the frame. The radiator should be set back 4 inches from the center of the front axle. A gear-driven centrifugal water pump (with a by-pass to be used as a thermo-syphon in case of injury to the pump, or in very cold weather) should be used. The fan should be in front, and carefully built and balanced, ball-bearing, gear-driven with two-speed gear and means for disconnection in cold weather

There should be two separate ignition systems: Bosch high-tension system and Remy low-tension with coil. A 6-volt, 60-ampere Exide cell should be connected to both systems so that either could be used for starting.

The carbureter should be a 1 1-2-inch Schebler, model L, water-jacketed with a hot-air intake. A Rayfield or a Stromberg would be optional. There should be a drain cock and shut-off valve at the carbureter with dash connection. A Schebler or a Rayfield strainer should be inserted in the gasoline line. An auxiliary air and needle valve connection should be brought to the dash.

A 20-gallon gasoline tank with a 5-gallon reserve should be used, the feed being by gravity. There should be a carefully constructed operating valve at the tank.

A multiple disk clutch having sixty disks, alternately hardened steel and phosphor bronze, running in oil, should be used. There should be a heavy steel spiral spring held by adjusting nuts to regulate its tension, with a removable plate to allow for complete examination, and one large universal joint between the flywheel and the clutch. The clutch should be bolted to the transmission case.

The transmission should be a selective, sliding gear, four-speed forward and reverse design. The gear shift should be so designed as to be impossible of removal until the clutch lever is forward. The idle gears should be held with the clutch out.

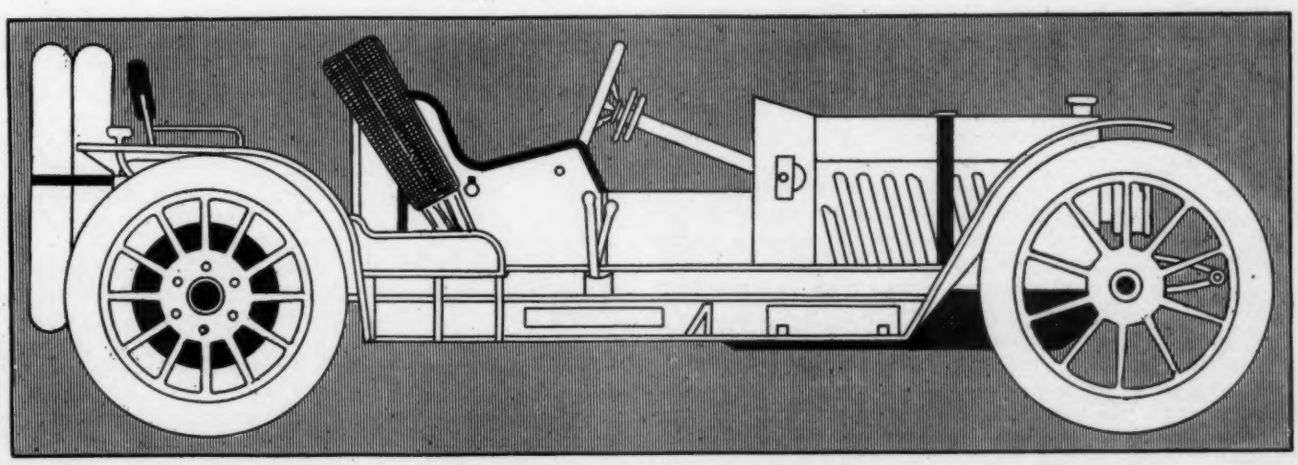
The front axle should be an I-beam, low dropped for the frame, while the rear axle should be floating with a large plate over the driving pinion and differential. There should be a cross-member loop from the frame under the driving member.

There should be internal and external brakes on large bronze drums, adjustable with equalizers. The foot brake should take hold easily and the emergency brake should lock the wheels.

The equipment should be as follows: Delco system for starting and lighting, top and cover, Warner auto-meter, Chelsea 8-day clock, Klaxon and bulb horns, muffler cut-out, two spare tire shoes and rims, two spare tubes, trunk rack, robe and foot rails, slip covers for the seats, full tool kit and two jacks, gear-driven air pump and tire connections, Prest-O-Lite gas tank, Never-Out license brackets, rear-vision mirror, rain-vision windshield, tire irons and tire trunk.

The car should weigh about 3,500 pounds with runabout body, and should sell for about $3,500.

H. E. COOK, U. S. S. *Mayflower*.



The ideal roadster according to the views of Lieutenant H. S. Cook of the U. S. S. Mayflower

Dynamo Requirements for Electric Lights*

Some Points Concerning the Proper Size of Storage Battery, Causes of Deterioration, etc.

Method of Wiring—Official Test for Cables—Protecting the Insulation

WHERE a shaft running at twice engine speed can be installed projecting from the timing gear case, or from the gear box, it can be driven by gears or chain running in oil, and then the dynamo can be directly coupled to the shaft. This gives a noiseless and almost wearless drive.

A sprocket on the pump shaft or magneto shaft driving a sprocket on the dynamo by silent chain at twice engine speed is quiet, efficient and satisfactory. It is of course better if the chain can be inclosed and run in oil.

Any one of these methods has been proven to be entirely satisfactory in practice and have long life and to be quiet.

Having determined all the necessary features of the dynamo regarding its output, speed and method of drive, we turn to the storage battery. The first thing to determine is the proper size storage batery to use with the dynamo selected. A proper storage battery must fulfill two conditions. A. If the car owner runs entirely in the day time the battery must have sufficient square inches of plate surface to be charged whenever the engine is running at the maximum dynamo amperes without injury to the battery. B. If the car is standing still with all lights lighted the battery capacity should be sufficient to keep all the lights burning for 6 hours, and when only the side and rear lights are on it should be capable of keeping these lighted for say two nights, or 24 hours.

Considering "A," experiment shows that a battery having 160 square inches of positive plate surface and 200 square inches of negative plate surface will not be injured by use with a dynamo giving 10 amperes output on an engine. Such a battery would undoubtedly be ruined if 10 amperes were put into it continually on the test bench, but the conditions in motor car service are so different as to require some comment.

There are two things that cause rapid deterioration of storage batteries when they are charged continuously at high rate. The first is that the heating of the battery due to continuous charging softens the plates so they become readily disintegrated. The second is that large bubbles of gas form on the negative plates, and when these bubbles break away from the plates they take particles of the active material, especially when this has become softened due to heating.

Bench Tests Not Convincing

On motor car work, in the first place, it is very seldom that a battery is charged continuously at the maximum rate for more than 2 hours at a time. There are always stretches of a few minutes when the engine is slowed down, so that the dynamo does not deliver its full output, or when the engine is stopped entirely, and the battery has a chance to cool off. As a result the service is not at all analogous to tests made on a test bench where the current is put into the battery continuously. On a test bench the battery would get hot but on a car it will not.

In fact in a battery with the plate surface already decided there is little or no heating in ordinary service, and no excessive heating in the most severe service.

In the second place the large air bubbles do not have a chance to form on motor car batteries due to the jarring and jolting that a motor car gets in going over the road. Before the bubbles have time to become large enough for them to take off a serious amount of active material when they break they are jolted lose and do not injure the plates to any material degree. As a result it will be found that storage batteries can be run at almost double the charging rate without undue deterioration on a motor car that they can when standing still on a bench.

The mechanical agitator now often used for large stationary batteries to keep bubbles from forming is replaced by the jolting of a motor car and the various methods of cooling often adopted for large stationary plants is taken care of in this case by the occasional slowing down of the engine and occasional stopping of the engine.

A battery on a motor car is run under ideal conditions because it is being constantly charged and discharged under ideal conditions as regards agitation and coolness.

A battery having the plate surface mentioned above will light all the lamps; that is, discharge at a 9 1-2 to 10 ampere rate for about 3 1-4 hours, and will light the side and rear lamps for 24 hours. Such a battery does not light all the lamps long enough, so that if batteries of this size are used there should be two of them, or a larger capacity battery having at least 80 ampere-hour capacity at a 10-hour rate can be used. Any battery made by a reputable maker and having 80 ampere-hour capacity at a ten-hour discharge rate will fulfill all requirements.

This latter battery will fulfill all the specifications and has ample plate surface, ample capacity to run all lamps for at least 6 hours and the side and rear lamps for 24 hours.

Having determined the size and best method of operating our lamps, dynamo and batteries for any particular installation, the next point that becomes of interest is the method of wiring.

Recommendations for Cable Test

The use of a bayonet lock socket has now become universal for practically all connection plugs and all lamp plugs, so that there is little need of discussing this. One point, however, that is not entirely cleared up in a great many people's minds is the type of wire which should be used for motor car work. In making a recommendation to a Special Advisory Committee of one of the Standardization Committees of the Society of Automobile Engineers, I recommended that the cable to be used for motor cars must stand a test of 12 hours immersion in oil, 12 hours immersion in gasoline and 12 hours immersion in water, and then stand 500 volts applied between the two conductors without breakdown. Such a wire I believe has ample insulating capacity and will take care of any oil, gasoline or water that it may get in motor car use.

Wherever there is any abrasion the cable should be armored either by a light woven metallic armor or by conduit, loom or some similar material.

There is no use armoring against heavy abrasion such as might be gotten by the wire rubbing against the flywheel, as any armor will wear through rapidly in this case, but the armor should take care of the abrasion that occurs on the leads of the lamps as they swing against the frame or some similar part, and almost any of the woven metallic armors will do for this.

Wherever rubber or material that would be dissolved by gasoline or oil is used for insulation it should be protected by another covering impervious to oil or gasoline, so as to render it impossible for the insulation to be ruined.

I believe this covers most of the points that an engineer designing a car would want to cover in his specification for a lighting system, with the exception of the method of regulating the output of the dynamo. Each manufacturer of motor-car lighting systems has a different method of doing this, and it is therefore impossible in a paper of this kind to discuss the matter without either praising or condemning the methods used by various manufacturers. For this reason I think it best to leave out entirely in this paper the method of regulating the output of the dynamo.

*Second installment of a paper read by Leonard Kebler, member Society Automobile Engineers, before Metropolitan Section, New York, on April 24.

Baltimore Equipped to Cope with Big Fires

Eight Pieces of Motor Apparatus Already Installed and More to Follow—Suburbs to Follow Suit

Niagara Falls Preparing to Motorize Its Fire Department—Test at Boston

BALTIMORE, MD., May 4—The fire department of Baltimore has in service at the present time eight pieces of motor apparatus which have replaced horse-drawn vehicles, while the department also has under construction one other combination chemical hose wagon and a supply wagon. The apparatus in commission at the present time includes the two large Mack high-pressure hose wagons, which were built especially to be used in connection with the new pipe line service in the business section of the city, which has just gone into commission. These two high-pressure hose wagons are the very latest acquisitions to the department. The other cars in service are Whites used by Chief Emerich, Deputy Chief Burkhardt, Superintendent of Machinery Mewshaw, while there are a White ambulance, a White supply wagon and a Mack hose wagon used by No. 32 Engine Company.

Three companies of Baltimore County have motor fire apparatus. These are Catonsville, Roland Park and Lauraville, while the people of Arlington are clamoring for such an apparatus and the residents of Pikesville have subscribed various sums for the purchase of a motor fire truck.

The Mack high-pressure hose wagons which have just gone into commission, together with the pipe line service of the city, have made excellent records on recent tests. Each of these two hose wagons have five nozzles, two in the rear, one on each side and one in front, and each of these nozzles at the test threw streams of over 2,000 gallons a minute, or over 10,000 gallons a minute for all fire nozzles on each one of the hose wagons. These wagons were each built to carry 5,000 pounds live load, but with the equipment and crew of twelve men carry 6,810 pounds.

These hose wagons carry 2,000 feet of 3-inch hose each and are equipped with electric lights and searchlights. They also carry fire hydrants, each of which have five hose attachments. These hydrants are distributed at the manholes in the pipe line district.

At the recent tests these hose wagons threw streams of water 160 feet straight up in the air, while at various angles the distances reached by the streams were much greater.

Speedy in Getting to Fires

These hose wagons are of four-cylinder and 50 horsepower. They are gasoline driven and are 12 feet long. They have 42-inch rear wheels, dual tires, and 36-inch front wheels. On a recent trial run straightaway these wagons easily averaged 50 miles an hour, while on an official test, on which Mayor Preston, the fire commissioners and other officials made the trip, the wagons averaged 32 miles an hour. This test was made in the business district of the city and turns were made every two blocks. Each of these wagons have a target device for signalling to the traffic policeman which way the wagons will go in approaching corners while responding to alarms. By means of these signal devices the police are enabled to clear the traffic way for the fire companies and much time and confusion are saved.

The pipe line district extends east and west from Jones Falls to Pace street, and north and south from Franklin to Pratt streets, an area of fourteen squares by eight squares. This territory has been divided up between the two high-pressure companies, so that each will cover an area of six by eight squares on the first alarm, while at large fires the two wagons will respond within all of this territory.

The three new Mack fire apparatus ordered for the Baltimore department include two combination chemical and hose wagons and a new supply wagon. The combination chemical and hose wagons will each be equipped with 1,000 feet of hose each and two big chemical tanks. They will replace the hose wagons now in use by engine companies Nos. 32 and 40.

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NIAGARA FALLS, N. Y., May 4—When Mayor Keller, Fire Commissioners Isaacs and Crick and Fire Chief Utz returned from a tour of inspection of various automobile factories, they announced that they had decided to purchase $17,285 worth of motor fire-fighting apparatus for this city. The fire commission decided on the purchase of a Haynes fire chief's car from the Werick Brothers Motor Car Company, of Buffalo, $1,785; one combination chemical and hose automobile, Knox Automobile Company, of Springfield, O., $5,500; one motor fire-engine, Ahrens-Fox model, $10,000. This engine will be propelled by gasoline and is the most powerful fire-fighting apparatus on the market. These cars will be delivered by the various firms at once. The Werick Brothers Company, of Buffalo, is constructing a motor police-patrol ambulance for this city and another automobile patrol-ambulance is being made at Kokomo, Ind.

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BOSTON, MASS., May 4—The first gasoline fire engine to be installed in the Boston fire department service was given a testing out a few days ago. The test took place at fire headquarters and the engine shot a stream up over the top of the tower of the building, 165 feet in the air. Few of the horse-drawn steam fire engines are capable of performing this feat.

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Calendar of Coming Events

Shows, Conventions, Etc.

May	6-11	Philadelphia, Show and Carnival, Belmont Race Track, Narberth, Pa., Belmont Motor Club.
May	**16-19**	**New Orleans, Annual Meeting National Good Roads Congress.**
June	5	New York City, Annual Orphan's Day.
June	17-22	Milwaukee, Wis., Convention and First Annual Show, National Gas Engine Association.
June	27-29	Detroit, Mich., Summer Meeting of the Society of Automobile Engineers.
July	10-20	Winnipeg, Man., Canadain Industrial Exhibition.
July	22-26	Detroit, Mich., Cadillaqua Week.
Sept.	23-Oct. 3	New York City, Rubber Show, Grand Central Palace.

Race Meets, Runs, Hill Climbs, Etc.

May	11	Atlanta, Ga., Hill Climb, Atlanta Automobile and Accessory Association.
May	17-18	Denver, Col., Track Meet, Colorado State Automobile Association.
May	18	Washington, D. C., Reliability Run.
May	30	Indianapolis, Ind., Speedway, 500-mile race.
May	30	Salem, N. H., Track Races, Rockingham Park.
June	6	Washington, D. C., Reliability Run, Washington *Post*.
June	8	Narberth, Pa., Track Races, Quaker City Motor Club.
June	20	Algonquin, Ill., Annual Hill-Climb, Chicago Motor Club.
June	20-22	Portland, Me., Reliability Run, Pine Tree Motor Contest Association.
July	3-5	Belle Fourche, S. Dak., Second Annual Track Meet.
July	4	Petersburg, Ind., Track Meet.
July	4-5	Taylor, Tex., Track Meet, Taylor Automobile Club.
July	4-6	Old Orchard, Me., Beach Meet, Old Orchard Automobile Association.
July	5-6	Tacoma, Wash., Road Races.
July	15	Milwaukee, Wis., Reliability Run, Wisconsin State Automobile Association.
Aug.	8-10	Galveston, Tex., Beach Meet.
Aug.	23-24	Elgin, Ill., National Stock Car Races, Chicago Motor Club.
Sept.	2	Indianapolis, Ind., Track Races, Speedway.
Sept.		Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club.
Oct.	5	Philadelphia, Pa., Annual Fairmount Park Road Race, Quaker City Motor Club.
Oct.	7-11	Chicago, Ill., Reliability Run, Chicago Motor Club.
Nov.	6	Shreveport, La., Track Meet, Shreveport Automobile Club.

Foreign

May	26	Barcelona, Spain, Cup of Spain Road Race, Automobile Club of Catalonia.
May	26	Sicily, Targa Floria.
June	15-23	Vienna, Austria, International Tour, Austrian Automobile Club.
June	25-26	Dieppe, France, Grand Prix de France, Automobile Club de France.

U. S. Rubber's Good Year

Despite Decrease in Sales, President Colt's Report Shows an Increase in Surplus of $826,307

COLONEL Samuel P. Colt, president United States Rubber Company, has submitted his annual report to the stockholders of the corporation for the year ending March 31.

Compared with last year's figures the report shows the following condition:

	1912	1911
Gross sales	.....	$54,751,939
Discount, rent, etc.	.....	13,863,215
Net sales	$36,775,947	$40,888,724
Manufacturing expenses	29,925,336	33,685,139
Manufacturing profit	$6,850,611	$7,203,585
General expenses	2,315,225	2,091,742
Operating profit	$4,535,386	$5,111,843
Other income	2,691,781	1,485,846
Total income	$7,227,167	$6,597,689
Interest	1,790,767	1,813,415
Balance	$5,436,400	$4,784,274
Bad debts	60,093	47,624
Surplus	$5,376,307	$4,349,825
Dividends	4,550,000	3,800,000
Surplus	$ 826,307	$ 549,825
Previous surplus	8,349,422	7,799,597
Total surplus	$9,175,739	$8,349,422

The company's favorable showing is the result of larger dividends paid by the various companies whose stock is held by the United States Rubber Company. The report does not include the operations of the Rubber Goods Manufacturing Company, Canadian Consolidated Rubber Company, Ltd., or the General Rubber Company because some of the stock of each is not controlled by the company.

The report states that the company has 20,000 acres of cleared land upon which has been planted 2,500,000 trees and employs 10,000 coolies in cultivating and gathering the crops.

President Colt predicts a constantly increasing demand and continued prosperity.

Additional capital for the company to finance the proposed expansion of its activities will probably be derived from the sale of from $15,000,000 to $20,000,000 of bonds.

Big Crops in Oklahoma and Texas

WASHINGTON, D. C., May 8—According to the government monthly crop report as of May 1, the acreage of winter wheat is 25,744,000, a decrease of 3,418,000 acres from last year, or 11.7 per cent. The condition of the crop was estimated at 79.7 as compared with 86.1 May 1, 1911, and a 10-year average of 85.2. The government estimates the crop at 370,714,000 bushels.

In several of the big wheat-producing states the condition of the crop is above the average as follows:

State	Acres	Condition 1912	Condition 1911	10-year average
Oklahoma	1,522,000	87	67	82
Texas	704,000	93	83	77
Montana	291,000	95	98	..

The greatest decreases in acreage were found in Illinois, Indiana, Ohio and Michigan where the poorest conditions of crop were also encountered.

INDIANAPOLIS, IND., May 6—Members of the Hoosier Motor Club who brought suit attacking the city motor license ordinance, have lost their fight in the county circuit court, but may appeal the case to the Indiana Supreme Court. In the meantime the city is insisting that automobile owners pay the license fee for 1912.

Two New Patent Laws

A Massachusetts Representative Introduces Bills Having Special Bearing on Resale Feature

WASHINGTON, D. C., May 7—Representative Thayer, of Massachusetts, has introduced two bills in the House bearing on the resale feature of the patent law, the bills being referred to the Committee on Judiciary. One has to do with the prevention of restrictions or discriminations being placed in the sale, lease, or license of tools, implements, appliances, or machinery, or in the use of any method or process covered by the United States patent laws. It provides that a conviction for a second time under the act shall cause the letters patent on the article in question to become null and void; that proof of violation shall be a good defense to any action for infringement of any patent in connection with which said violation occurs, and that any person injured by the violation of this Act may bring an action for damages against any party so violating, the action to be filed in any United States district court.

The second bill is to prevent restrictions or discriminations in the sale, lease, or license of tools, implements, appliances, or machinery covered by Interstate Commerce. It provides means whereby proceedings may be brought in the various courts, whether in equity, or otherwise, under violations of the act. It says also: That any property owned under any contract or by any combination or pursuant to any conspiracy (and being the subject thereof) mentioned in section one of this Act and being in the course of transportation from one state to another or to a foreign country, shall be forfeited to the United States, and may be seized and condemned by like proceedings as those provided by law for the forfeiture, seizure, and condemnation of property imported into the United States contrary to law.

That the word "person" or "persons" wherever used in this Act shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States or the law of any of the territories, the laws of any state, or the laws of any foreign country.

Trip Tickets for Taxi Rides

NEW ORLEANS, LA., May 7—Trip tickets good on taxicabs have been placed on sale at the depots in this city. Through the influence of the Louisiana Motor League, this step has been taken to avoid overcharges occasionally made by unscrupulous chauffeurs. During the week that this system has been in operation, an increased business is reported by the taxicab companies. Encouraged by the good showing, efforts now are being made to establish a ticket system for the city taxi service. Tickets to points within the city limits, to the resorts on the lake and other places of interest, would be on sale at hotels and other taxi stands. The taxicab owners are said to favor this plan principally as overcoming the necessity of taking the most direct route from point to point.

Preparing for Orphans' Day

The annual meeting of the Orphans' Automobile Day Association of New York, Inc., was held on May 3. Mrs. J. D. Smith was elected president to succeed Col. K. C. Pardee, who for three years has rendered most diligent service. Wednesday, June 5, was selected for this year's outing for the orphans. The automobile trade is rallying to the support of this worthy charity, as usual, and entries are coming in in gratifying numbers. Many cars, however, will be required to take all the children who wish to go, and manufacturers and agents, as well as individuals, are asked to loan their cars for June 5.

N.A.A.M. vs. Railroads

Case Against Ann Arbor Line Involves Question of Unjust Charges in the Shipping of Automobiles

WASHINGTON, D. C., May 7—Commissioners Meyer and McChord, of the Commerce Commission will sit in New York, May 23, to hear arguments in the case of the National Association of Automobile Manufacturers by Wm. E. Metzger, president, *vs.* the Ann Arbor Railroad Company, *et al.* The question of rates on automobiles out of Detroit is involved and the Commissioners expect an interesting hearing. In all, about fifty railroad lines are parties to the action. The petition filed with the Interstate Commerce Commission sets forth that the complainant is an association incorporated under the laws of Connecticut and consisting of persons and representatives of companies located at various points in the United States engaged in the manufacture and sale of self-propelled vehicles, and in shipping them to various parts of the United States and elsewhere, *via* defendants' lines of railroad, and the lines of other carriers.

The specific complaint is in effect as follows: That complainant's members ship self-propelled passenger and freight vehicles in carload lots over defendants' lines; that the transportation charges on these shipments are not governed by special or so-called commodity tariffs, but are subject to the class rates according to defendants' individual or joint tariffs and the official classification; that self-propelled vehicles now constitute the largest, or one of the largest, items of traffic moving in carload lots which is handled by defendants under classification ratings, and without the benefit of special or so-called commodity rates.

Test Shows Army Truck Efficiency

WASHINGTON, D. C., May 7—The War Department has cancelled an order assigning Captain A. E. Williams to his regiment in the Philippines as a result of the interest felt by his superiors in the tests recently completed by Captain Williams of the endurance qualities of motor trucks. Captain Williams started from Washington with three trucks and went to Atlanta, from there returning by way of Fort Benjamin Harrison. The object was to determine whether the army mule could be successfully superseded by the motor truck. Captain Williams' observations are to the effect that a 1 1-2-ton truck can operate over any road where columns of troops can march, and the machine can always keep up with the soldiers.

Captain Williams will be sent to Sparta, Wis., to remain during the summer maneuvers and will use the trucks in conjunction with the supplying of troops in the field under conditions similar to those of war.

Can an Automobile Ride Be Stolen?

MONTREAL, May 3—Frank S. Anderson, who gave his residence 76 Victoria avenue, pleaded not guilty to false pretence in connection with an automobile ride and was remanded till May 8.

Anderson is charged with obtaining an automobile from the complainant, Albert Fortin, by use of a telephone message, using the name of Dr. Keating. When the bill was presented it was repudiated by the doctor, who denied engaging the car from Fortin. A point of law was raised by counsel for the accused, who claimed it was impossible to steal a ride in an automobile and therefore it cannot be obtained by false pretences. The by-law reads: "Can only obtain by false pretence something capable of being stolen."

As it was a new point in the Montreal court, Judge Lanctot advised the complainant to secure the services of a lawyer.

Standardize Truck Frames

National Association of Automobile Manufacturers Agrees Upon Commercial Car Dimensions

AT the monthly meeting of the executive committee of the National Association of Automobile Manufacturers, held in New York on May 1, standard widths and lengths of motor truck frames back of the driver's seat were adopted.

Two standard frame widths were agreed upon: 36 inches and 42 inches.

Twenty lengths, which are graduated by feet and half feet, were adopted as standard. These lengths, in inches, are: 48, 60, 72, 84, 96, 108, 114, 120, 126, 132, 138, 144, 150, 156, 168, 180, 192, 204, 210, 216.

The object in recommending these frame dimensions is to provide standard widths and lengths toward which manufacturers can work with a view to providing for interchangeability of bodies on trucks of different makes and models in the future and to enable the body builder to make up stock bodies that can be delivered without delay and placed on any make of truck.

The desirability of such standards is shown by the fact that measurements of eighty-eight different models by various manufacturers presented nineteen different widths, from 28 to 46 inches, and that upward of one hundred models showed forty-one different lengths of frame back of seat, from 48 inches to 218 inches. By graduating the lengths by multiples of 6 inches, from 4 feet to 18 feet, it was found that these could be reduced to twenty lengths.

The executive committee also adopted a resolution recommending to members of the N. A. A. M. a schedule of charges for demonstrations as follows:

½-ton truck	$10 a day	5-ton truck	$30 a day
1-ton truck	10 a day	6-ton truck	30 a day
2-ton truck	15 a day	7 and 8 ton trucks	35 a day
3-ton truck	20 a day	9 and 10 ton trucks	40 a day
4-ton truck	25 a day		

Row Over Makers' License Tags

PHILADELPHIA, May 6—The question of the recognition of Pennsylvania manufacturers' license numbers by the authorities of New Jersey, and vice versa, has during the past week been one of no little concern to the automobilists of the two states. The disagreement came about through different interpretations of the reciprocity laws. It was claimed by the local police department that Philadelphia dealers had been held up in Camden when carrying only the Pennsylvania manufacturers' tag. On the other hand, J. B. R. Smith, Commissioner of Motor Vehicles in New Jersey, denied the charges and threatened unless they were substantiated to retaliate by forbidding Pennsylvania motorists entrance to New Jersey in all cases where only the manufacturers' tag was used. Through the efforts of local motoring organizations a truce has been declared and unless further complications ensue the misunderstanding will be forgotten and dealers' tags accorded official recognition in both states.

Jail Offense to Steal Automobile

WASHINGTON, D. C., May 7—Major Richard Sylvester, superintendent of police in the District of Columbia, has prepared a draft of a bill which he will present to the District Commissioners for approval in which he fixes the penalty for automobile stealing at a term in the penitentiary. Washington automobile owners have suffered to such an extent, recently, that drastic measures are considered necessary. Major Sylvester, in discussing his bill, said that the penalty now for taking an automobile by one who has no right to take it, usually for the purpose of a joy ride, is but a $40 fine.

Indirectly Protecting the Automobile Owner

How the Special Guarantee Contract Operates to the Advantage of the Car Purchaser

New Form of Automobile Insurance Which Replaces the Standard Policies

Part III

BUYERS of certain makes of automobiles are given special guarantee contracts which virtually take the place of the fire, theft and transportation policy and the collision clause which may be attached to either the above-named policy which is written by fire and marine companies or the liability contract which is written by the casualty insurance companies. The features of these polices have already been brought out in the two preceding issues of THE AUTOMOBILE.

This form of insuring contract appears as a selling feature for a new car, and it remains in force for one year after the date of sale. It is issued by the manufacturer or selling branch of the car, which, in turn, is protected by an insurance company. Under such an insurance policy, the car maker can guarantee the buyer repair to the machine or replacement of any of its parts (or give a new car if necessary) on account of accident, collision, wear, fire, theft or transportation. In fact, so broad in scope is this guarantee that the purchaser of the car is protected against any damage whatever to his machine within the period of one year.

Form of Guarantee Contract

The guarantee contract which is issued to the automobile purchaser by its manufacturer or sales agent is here given:

Date of Issue.....191..

Special Guarantee Contract

No.———

FOR AND IN CONSIDERATION of the purchase price paid to us for one (1) .....described at follows:.....

We, the....., hereby agree with ....., of the City of....., State of....., for his own sole benefit, as follows:

FIRST. We will renew, or replace, by our employes, at our factory or shop, absolute'y free of cost to you, any part or parts of said automobile which shall, within a period of twelve (12) months from date hereof, break or wear out under normal use and service.

SECOND. We also agree to replace said automobile, or repair the same by our employes, or at our factory, free of cost to you, if the same shall, within twelve (12) months from the date of issue hereof, be destroyed or damaged by fire arising from any cause whatsoever, including explosion, self-ignition and lightning; or if damaged or destroyed by reason of the stranding, sinking, collision, burning or derailment of any conveyance, by land or water, in or upon which such automobile is being transported; or if lost or damaged by theft, robbery or pilferage, provided such loss or damage is caused by the act of persons other than those in the employment, service or household of the party to whom this Special Guarantee Contract is issued; or if same be damaged or destroyed by collision with any other vehicle or object, moving or stationary.

THIRD. This Special Guarantee Contract does not apply to any part of said automobile except such parts as are delivered by us to you, nor shall it apply to lamps, tires, or tools, nor shall it apply to any loss or damage to said automobile which is rented or hired.

FOURTH. The party to whom this Special Guarantee Contract is issued shall not be entitled to make claim hereunder, unless notice of the loss or damage claimed shall be given to us immediately after it occurs, and unless said automobile is held by the purchaser awaiting instructions from us.

THIS AGREEMENT is personal to you as purchaser of this automobile and is not assignable, and if transferred or assigned shall be void.

.....

By.....

The first clause of this contract is very similar to the warranty which is given by the majority of the automobile manufacturers against defective materials and workmanship for a period of six months from the date of shipment from the factory. The time covered, however, is twice as long.

The parts of the second clause which state that the owner is guaranteed replacement of his car or repair of same by the employees of the manufacturer if the machine is destroyed or damaged by fire arising from any cause whatsoever, including explosion, self-ignition and lightning, that he is guaranteed against loss or damage to the car by reason of the stranding, sinking, collision, burning or derailment of any conveyance, by land or water, in or upon which such automobile is being transported, and that he is protected if the car is damaged or destroyed by collision with another vehicle or object, moving or stationary, give identically the same protection as that accorded by the fire, transportation and collision conditions of the standard form of automobile policy issued by the thirty-seven insurance company members of the Automobile Underwriters' Conference.

The parallel conditions which appear in the conference policy are as follows:

The automobiles mentioned in the body of the policy are insured against:
1. Actual loss or damage to the automobile hereby insured caused by fire arising from any cause whatsoever, including explosion, self-ignition and lightning.
2. Actual loss or damage to the automobile hereby insured while on board railroad car caused by derailment of the car or collision of the railroad car with another railroad car.
3. Actual loss or damage to the automobile hereby insured while on board steamer caused by stranding, sinking, burning or collision with another vessel, including general average and salvage charges.

Conditions 2 and 3 of the conference policy are seen to be combined in the one transportation clause of the guarantee contract.

The theft feature of this contract which is given in the second clause and which states that the manufacturer will replace or repair the car if lost or damaged by theft, robbery or pilferage, provided such loss or damage is caused by the act of persons other than those in the employment, service or household of the party to whom the contract is issued, differs somewhat from the theft clause of the standard conference policy, which reads as follows:

The automobi'e mentioned in the body of the policy is insured against actual loss or damage if amounting to $25.00, on each occasion, by theft, robbery or pilferage by persons other than those in the employment, service or household of the insured.

It will be noticed that the conference policy does not cover losses by theft unless the loss totals $25 or more, while the guarantee contract covers theft of any amount. However, the conference policy covers the body, machinery and equipment of the car, while, according to the stipulations of the third clause of the guarantee contract, the latter does not apply to any parts of the automobile except such as are delivered to the buyer by the manufacturer, nor does it apply to lamp, tires or tools. The conference policy covers these, if the loss amounts to $25 or over, so that the advantage here is slightly in favor of the conference policy. If a tire valued at about $60 is stolen from an insured car while it is standing in a street, the owner can recover from the insurance company the amount of the loss, while if the car owner were protected by a guarantee contract only, he could get no payment for the loss.

Immediate Notice of Accident

The fourth clause of the guarantee contract is important from the standpoint of the holder, for it stipulates that he is not entitled to make a claim unless notice of the loss or damage claimed is given immediately after its occurrence, and unless the automobile is held awaiting instructions from the manufacturer or dealer. This clause should be remembered and its directions strictly followed in case of accident or loss.

Unless the conditions of this contract are strictly adhered to by the purchaser of the machine, he cannot hope to recover his losses from the automobile company, since the latter to recover in turn from the insurance company must follow strictly the stipulations of the guarantee contract which it issues to its customers.

As already stated, to give such a broad contract to its customers the car maker or dealer must have insurance to cover the losses which the fulfillment of the contract entails. Otherwise, he could not afford to assume the risks of fire, theft, collision and transportation for the purchaser of the car.

In one form, the policy which the manufacturer takes out in

order to issue these guarantee contracts reads substantially as follows:

The insurance company insures the manufacturer against actual net loss sustained by the assured on account of any claim arising or resulting by reason of the issuance by the assured of any special guarantee contract in connection with the sale of automobiles by the assured, which special guarantee contracts shall be in all their terms, conditions and limitations the same as the form already given.

The insurance company does hereby further agree to defend in the name and on behalf of the assured, at the company's own cost and expense, any suit brought against the assured to enforce a claim, whether groundless or not, if such claim should be one which is specifically insured against in this contract of insurance:

CONDITIONS, LIMITATIONS AND AGREEMENTS

1. The assured hereby agrees that the special guarantee contracts referred to herein shall be insured only from the main office of the assured and shall be duly executed by a duly authorized officer of the assured whose name and signature shall have been previously furnished to the company, and all such special guarantee contracts shall be numbered consecutively, beginning with the number....

2. It is further agreed by the assured that immediately upon the issuance of any such special guarantee contract, assured shall give immediate written notice to the company, on blanks furnished by the company for that purpose, of the execution of such special guarantee contract, specifying therein the serial number of same, the date of issue, the name and address of the purchaser in whose favor said guarantee is issued, the car and engine number, the catalogue list price, the date of delivery, and, if known, the probable place in which such automobile will usually be kept.

4. The company shall not be liable for any claim against the assured for loss or damage to any automobile referred to in any special guarantee contract while such automobile is used, operated, manipulated or maintained beyond the limits of the United States and Canada, or while in any race or speed test, or for rental or the transportation of passengers for hire, or for the carrying of explosives not used in connection with the operation of the automobile.

5. The company shall not be liable for any claims for loss or damage to extra equipment not furnished with the automobile by the assured, or to lamps, tires, tools.

6. The company shall not be liable for any repairs or replacements not actually made by assured, or assured's employes, and it is understood and agreed that assured shall make all replacements of automobiles, or any parts thereof, at actual net cost of same to the assured, the company to receive the benefit of all manufacturers' guarantees, if any; but in connection with repair work assured may add twenty per cent. to the amount of the actual net cost thereof.

9. In the event of partial loss or damage to any automobile referred to in any special guarantee contract, whether such loss or damage is covered by this policy contract or not, the liability of the company hereunder, to the extent of such loss or damage, shall be proportionately reduced until repairs have been completed, but shall then attach for the full amount originally written; but the company's liability on account of claims arising under any special guarantee contract for any one automobile shall terminate upon the payment of a total loss thereunder.

10. In the event of loss or damage to any automobile referred to in any special guarantee contract, the assured shall with all reasonable dispatch give written notice thereof to the company, at its home office, and shall also allow the company, its agents or representatives a reasonable time and opportunity to examine such automobile before any repairs are begun, or any physical evidences of damage removed.

11. Proof of loss under this contract must be made in writing and presented at the home office of the company, signed by the assured, and verified by affidavit if the company so desires, which proof of loss shall contain a detailed statement of the damage to the automobile, and the cause thereof, together with a detailed statement of the actual net cost to the assured in making the repairs or replacements. If such proof of loss is not so made within sixty (60) days after the date of the loss or damage referred to, the assured agrees that any right of action arising hereunder with respect to such loss shall be deemed to be waived. The assured further agrees that any right of action hereunder shall be waived, unless suit shall be instituted thereon within one year from the date on which such cause of action shall arise. Claims for loss under this policy contract shall be payable within thirty (30) days after proof of loss, as herein provided for, shall have been made.

14. The company, its agents and representatives, shall be permitted, at all reasonable times, to inspect the books and other accounts of the assured and its agents and representatives, insofar as same pertain to any matters affecting the rights of the parties under this policy contract.

15. Upon payment of any loss hereunder, the company shall claim that such loss was caused by the act or neglect of any person or corporation other than the assured, or the owner of the automobile, the assured shall cause the company to be subrogated to the extent of such payment to all rights of recovery of assured, or the owner of the automobile, against others for such loss or damage, and the assured shall co-operate with the company to secure such rights.

16. It is understood and agreed that the assured shall pay additional premiums under this policy contract at the rate as stated in the schedule of rates printed herein for each one hundred dollars ($100.00) of the insurable value, arrived at as provided herein, of each automobile in respect to which the assured shall have issued a special guarantee contract, and it is also understood and agreed that the insurable value of each automobile shall be..... of the list price of such automobile as set forth in the catalog of the assured, and the assured shall pay semi-monthly to the company such additional premiums for all special guarantee contracts issued during the preceding one-half month.

18. The deposit premium of.....provided for in this policy contract shall be returned to the assured at the end of the policy period, provided all premiums due hereunder shall have been paid.

21. No special guarantee contracts shall be issued by assured in connection with any second-hand automobiles and if issued shall not be covered by this policy contract.

Limits Territory of Operation

Certain clauses of this form are of special interest. Condition No. 2 requires the assured dealer or manufacturer to give immediate notice of the issuance of any guarantee contracts with full description of the car in each case, while condition No. 14 gives the insuring company the right to inspect any of the books or accounts of the automobile company which pertain in any way to the contracts which the policy covers. These stipulations would seem to give the insurance company broad supervision of the business transactions of its clients, in so far as they refer to the guarantee contracts which it has undertaken to stand back of. This is no doubt justifiable when the magnitude of the risk is taken into consideration.

Condition No. 4 is very important, although it is not accorded a prominent position in the policy. It limits the scope of the contract to the United States and Canada, annuls it if the car is used for races or speed contests, if it is operated for hire, or if it is used for the carrying of explosives not used in connection with the running of the machine. The guarantee contract which is given to the purchaser of the car makes no mention of territorial limits, of the speed-contest stipulation, nor of the clause against the carrying of explosives. The first condition of the contract, however, states that it covers any part or parts which may break or wear out under normal use or service. This may perhaps mean that the carrying of explosives which are not used in connection with the car's operation and the driving of the vehicle in races or speed contests are not operative conditions which would come under the "normal use or service" category.

Further, the stipulation against the use of the guaranteed car for rental or hire is made in the guarantee contract, but no mention whatever is made of the territorial operative limits. To have a thorough understanding between all parties concerned, all conditions which affect the contract and which appear in the policy issued to the automobile company should be found in the purchaser's contract also.

Condition 6 is of interest, since it gives an idea of the manufacturer's end of the matter. He is not allowed any profit on replacements, but is accorded 20 per cent. on repair work.

Condition No. 9 is similar to the thirteenth clause of the conference policy which was taken up in detail in a previous issue of THE AUTOMOBILE.

The Basis for Premium Rates

The company, according to clause No. 10, requires immediate notification of any accident to a machine which carries a guarantee contract, and stipulates that the damaged car must be inspected by its representative before any evidences of damage are removed or repairs made. This is in accordance with the usual methods in force with all classes of insurance, and of course, is an enemy of quick repair.

The conference policy condition as to subrogation of rights appears in a corresponding manner in this policy under head No. 15.

The premium rate is based on each $100 of the insurable value of the automobiles covered by the guarantee contracts, and it is fixed individually for each specific automobile company or maker. The value of the car is also taken into account. Clause No. 16 has to do with this phase of the policy. The rate is fixed on a single guarantee contract, and additional ones are paid for at the same rate. If the cost of one contract was $80, then if three more were issued, the additional cost would be $240, and so on. The policy states that the automobile dealer or manufacturer must pay the insurance company semi-monthly such additional premiums for all special guarantee contracts issued during the preceding one-half month.

It is seen that the scheme has been carefully worked out, and should gain in favor with the car manufacturers and dealers as it becomes better known. Its advantages to the purchaser of the automobile are very great, since it practically relieves him of insurance or repair expense. Unless he wishes to carry liability and property damage insurance as protection against injury to persons and to property of others, practically the only cost which he will have for the first year will be for gasoline and tires.

Such guarantee contracts mean the reduction of the owner's first year car expense by $75 to $300 or even more, considering that he would otherwise have to carry collision and fire, transportation and theft insurance, and depending, of course, on the value of the car. The manufacturer who gives such a broad contract to his customers should increase his sales, and for that reason, the scheme works two ways, or even three if the insurance company is also considered as one of the beneficiaries.

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Activity in Automobile Clubs

THE history of the automobile clubs in America has not been one of the brightest phases of the industry. There have been some great clubs, some small ones; and today we have a few great ones and several very small ones. It has been difficult for the automobile club to fit in, as the motorist puts it. Many car owners would like to belong to automobile clubs, but they have a string of other club memberships; some are political clubs, some athletic clubs, some industrial clubs, some university clubs and many simply social organizations. Into this phalanx of clubdom the automobile club had to break. In many cities the thin edge of the wedge was inserted, but it rarely got any farther.

In 98 per cent. of the cities where a separate clubhouse was considered a necessity financial embarrassment soon followed. Club life seemed impossible. The owner of a car costing little over $500 did not have much in common with the owner of a $6,000 limousine with summer bodies to go on the same chassis. While having little if anything in common, both had an equal right to club membership and, as often happened, the owner of the cheap car was considerably more enthusiastic than the other was. Oil and water do not mix, and it proved impossible to weld into one united club the varied factions that applied for membership.

But automobile club difficulties did not end here. The industry was a growing one. The people who owned cars of the higher-priced types were accustomed to the best that the old-established clubs had to offer, and when the automobile club was created it proved attractive for a time. It was but a few months, however, before dining-room service proved a losing enterprise, club life rarely got started and the club path was a thorny one indeed.

Two types of automobile clubs have developed since the industry sprang up—one best described as the wealthy man's club, the other the utility club. The former came into being in most cases as a weapon to fight adverse motor legislation. In this it frequently did valiant service; but those who at first worked hard to build the club soon lost enthusiasm; the edge of the excitement wore off and the club was transmuted into a garage. The original efforts waned, and the public-spirited aspect practically passed out of being. The utility club has been of later origin. It is to all intents and purposes the antithesis of the wealthy man's organization. Club quarters are generally not thought of other than gratuitous quarters in a representative hotel. The spirit of the club has been activity—activity in the stimulation of contests, activity in sane legislation, activity in promulgating the improved highway spirit; in fact, activity has been the warp and woof of the entire structure. The activity club has drawn its membership from the great masses of automobiledom, from the corner grocery man interested in motorcycle delivery to the multi-millionaire with his chain of factories. The bond of union in the activity club has been action—that common spur to progress irrespective of wealth, vocation or social distinction.

The activity club is the healthy club today. It is the club that is accomplishing results, the club that the industry needs, the club it cannot do without. While the wealthy man's club is often torn with internal dissension, the other is doing things.

The entry of the wealthy man's club into the automobile business has been one error into which it has fallen. When the social life of such organizations failed, the garage and repair-shop phase became attractive. The club entered the business field ostensibly to help its members; but it became purely a business organization, with a few conspicuous social phases. It became a rival of the business automobile house, buying from the same people the latter buys from, and selling at the same or a little lower margin of profit. This soon bred discontent. The member in the automobile supply business discovered that he was directly contributing to a rival business establishment. Conditions of this nature have been active in sapping the life-blood from every such club, wherever located. The club should keep out of such lines. If its members want a private garage they have the privilege of subscribing capital and entering such a business, but where such does business under club colors it is bound sooner or later to come into ill-repute.

* * *

Later 1913 Announcements

THE announcements of 1913 models are being made much later than those of the 1912 types last year. Last season the new models were being heralded over the country in the midst of the 1911 selling season. Not a few of the new models were announced a month or so

in advance of the completion of the old model line. The net result was more or less distraction among the buyers. Those who had arranged for May or early June delivery of 1911 cars were becoming unsettled in mind, feeling that they were buying an old type, whereas if they would wait but a few weeks they could get a newer model. So country-wide was the evil influence of this that the matter was taken up semi-officially in not a few of the motoring organizations, and the feeling spread broadcast that 1913 announcements should be withheld until the 1912 lines were well cleared out. As a result the majority of the 1913 announcements will not be made before the end of June or early in July, July 1 being the end of the manufacturing year with many of the makers. The delaying of announcements is particularly wise this season owing to the severe winter and the backward spring throughout most of the country. These conditions have greatly delayed sales, and if the months of May and June are free from 1913 announcements it will greatly facilitate sales.

Numbering the Farm Houses

How a Wisconsin Automobile Club Proposes To Facilitate Travel and Make It Easy to Reach One's Destination

KENOSHA, WIS., May 6—The Kenosha Automobile Club, of Kenosha, Wis., is working on a plan of districting the county of Kenosha which will greatly facilitate travel and make it as easy to find a farmhouse as it is to find a city residence. The plan is a new one in Wisconsin and is attracting state-wide interest.

The Kenosha club plans to block all highways in the county, then name each and number the farms. The main features of the plan are outlined as follows by Russell H. Jones, secretary:

1. The roads of the county are first carefully studied by experts, and then aligned, or arranged, into the fewest and longest lengths suitable for naming and blocking.

2. To each road, as aligned, is given a short euphonic name.

3. The roads are then blocked, which consists of carefully measuring them along the surface, giving traveled distances, and divided into miles, which are then sub-divided into tenths of a mile or imaginary blocks of 528 feet of road frontage. The blocks are then numbered, commencing at the end of the road nearest the county seat, and the block numbers are taken as the basis for numbering farm houses.

The proposition has been taken up by the Kenosha county board of supervisors and is receiving support all along the line.

County Road Plans Recognized

MADISON, WIS., May 6—The Wisconsin State Highway Commission has settled an interesting dispute which arose in Bayfield county, on the south shore of Lake Superior, over the state aid law of 1911. The county was entitled to state aid of $20,000 according to appropriations made by the several townships. The county government wished to begin at once to plan and start building a complete system of county roads and needed $50,000 additional for the purpose. A bond issue of $50,000 was then authorized by the board of county supervisors, but the individual townships objected. The county went before the highway commission of the state, which decided to approve highway plans made by the county as well as the bond issue. No individual protest will be recognized by the commission.

NEENAH, WIS., May 6—The Wisconsin Highway Commission has approved plans and arranged to start work on May 15 on a new highway of a permanent nature between Neenah-Menasha and Appleton, Wis. The road will be built by the commission at the cost of $7,500 to the state, as an experimental or illustrative highway. The road will be constructed of macadam with a bituminous binder and wearing surface, making it practically an asphalt pavement.

Sliding Scale for Licenses

Candidate for Governor of Michigan Believes That Small Cars Should Pay Less Than High-Powered Automobiles

LANSING, MICH., May 6—Secretary of State Frederick A. Martindale, who will seek the Republican nomination for governor, will advocate a proposition to convert a portion of the funds received from automobile licenses toward the maintenance and construction of good roads. Secretary Martindale is of the opinion that it would be a good proposition to eliminate the local tax on automobiles and increase the state license. At the present time every automobile owner is required to purchase a state license, which costs $3. These licenses are purchased at the office of the Secretary of State. Every owner is assessed locally according to the value of his machine. Secretary Martindale says it might be necessary to devise a plan whereby the high-priced cars would not be licensed at the same rate as the low-priced ones, as a uniform rate would be discriminatory against the man who drives a runabout as compared to the one who pilots a six-cylinder. It is a notorious fact that many owners at present escape the local tax, but should the matter be taken out of the hands of the local assessing officers the tax would have to be paid before the license would be granted. Secretary Martindale estimates that in this way more than $500,000 a year could be collected, and he is in favor of using this to construct and maintain trunk roads.

Improving Transcontinental Route

ROCK SPRINGS, WYO., May 6—The state of Wyoming intends to lighten the labor of the transcontinental tourist this summer if work on the state roads counts for anything. Contracts have been let for a short cut from Table Rock to Point of Rocks which will save about 40 miles on the present route. This new road will cut out the famous Bitter Creek stretch of alkali mud, which is generally believed to be the worst stretch of road in the state. On top of this comes the information that a new short cut between Granger and Evanston will save about 80 miles. The later road includes the construction of two bridges costing about $60,000. Work on these structures is about completed. It is expected both new roads will be finished in time for the coming summer's travel.

CORRY, PA., May 7—The work of constructing good roads for use of motorists in Chautauqua was begun the past week. The immediate work in hand is the paving of roads from Corry, Pa., to Findlay Lake, N. Y., a distance of 16 miles.

CHARLEVOIX, MICH., May 6—The board of supervisors of Charlevoix county has decided to submit to the people at a special election to be held June 3 the proposition of bonding the county for $350,000 for the purpose of constructing good roads.

Women Aid Good Roads

President of National Association Asks Federation of Women's Clubs to Help Along the Work

Bridges Designed Solely for Automobile Use—Planning Trans-Continental Road

NEW ORLEANS, May 7—Aid from women is expected to be a factor in the good roads movement in Louisiana. President Arthur C. Jackson, president of the National Good Roads Association, who is here helping prepare for the national congress, which will open Thursday of next week, has submitted a proposition to the Louisiana Federation of Women's Clubs, which provides for the active work of the 112 women's clubs in the state in the campaign for good roads.

Another feature of the visit of President Jackson is the organization of the Louisiana Good Roads Association. In order to organize the work better, which at present is in the hands of the Louisiana Motor League and other societies, the formation of the new body is considered essential to the best results. The actual formation of the association will take place during the congress.

Governors of ten Southern states have been invited to attend the congress. Every effort is being made to surpass the record of the last congress at Birmingham, when 2,000 delegates were in attendance. Arrangements have been completed for the entertainment of 2,500 delegates, and if the number should pass even that figure there will be no difficulty experienced in providing accommodations.

Cost of building good roads under Louisiana conditions have been compiled carefully for presentation to the congress. While many of the conclusions from the extensive compilation will not be announced before the congress, it is known that results show decided advantages in the use of prison labor. By the use of convicts road building cost from $800 to $1,400 per mile, which shows a saving of from 30 to 40 per cent. over work done by regularly paid workmen.

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Bridges for Automobiles Only

SANTA FÉ, N. M., May 4—An automobile toll road with specifically constructed automobile bridges is one of the latest novelties encountered in touring in the Southwest. The highway in question connects the towns of Roswell and Vaughn, in this state, and as the other roadways of this district run through stretches of almost impassable sand this toll road, in spite of the fee of 5 cents per mile, is very popular with tourists.

The bridges along the route are most peculiar, being suitable only for automobiles. Over the ravines two troughs are built about 4 feet apart at their inside edges. In these troughs the wheels of a crossing automobile are guided and the sides of the trough prevent the car from sliding off into the ravine. There is no planking between the two runways for the wheels; thus the middle of the bridge is open the entire length and horse-drawn vehicles cannot cross over.

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Planning Ocean-to-Ocean Road

KANSAS CITY, Mo., May 6—A most important step in the movement to construct a great national highway across the American continent was taken last week when the National Old Trails Ocean-to-Ocean Highway Association was formally launched at an enthusiastic convention here at which many delegates were in attendance from the states through which it is planned the highway will pass.

Almost every city of importance from New York to San Francisco will be included in the route, every mile of which has been charted by the pathfinder of the Touring Club of America who made a 9,000-mile circuitous tour of the United States under the auspices of the Office of Public Roads, Department of Agriculture, at Washington, D. C.

The highway will go westward from New York through Philadelphia, Baltimore, Washington, Wheeling, Columbus, Indianapolis, Terre Haute, St. Louis, Kansas City, Emporia, La Junta, Albuquerque, Phoenix, San Diego, Los Angeles to San Francisco.

Plans were formulated for the making and marking of a permanent transcontinental highway following as nearly as practicable the routes known as the Cumberland Pike, the Boon's Lick Road, the Santa Fé Trail and the Trail to Sunset. This route not only includes most of the important sight-seeing regions, but also keeps to historic paths forming the most remarkable scenic highways ever opened to the motor tourist.

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Improved Ferry Service for Tourists

SYRACUSE, N. Y., May 6—The Cayuga Lake ferry, used largely by through tourists going west *via* Auburn to Rochester, opened yesterday, a full week before expectations. Owing to complaints of automobilists last year, two boats will be employed this season instead of one, so that there will be no delays. Meanwhile, there is being constructed through the swamps near Free Bridge a new state road, after much difficulty in securing a firm foundation, that will save many miles of detour having to be made at present. The tourist season is starting late this season, owing to the protracted winter.

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Farmers Favor Chicago Club Idea

SPRINGFIELD, ILL., May 6—Illinois farmers, automobilists, state representatives, editors and good roads people throughout the state who have had a wild time for the past two weeks trying to decipher the recent action of the Chicago motor clubs blocking the contemplated division of the Illinois state automobile tax funds, are laughing at themselves for their stupidity.

Two weeks ago the hostile and derogatory remarks against the Chicago automobilists in general were on every farmer's and politician's tongue. Today all the down-state trouble makers are praising the wisdom of the Chicago clubs, and there is no doubt that Chicago will receive all the assistance necessary in the work of formulating a competent and equitable committee to hold the fund for another year, and then divide it on the township basis after a thorough investigation by the committee as to the best needs of the various townships throughout the state needing assistance in the way of building good roads. When it was pointed out and explained that the $216 which would be each township's share in case the fund was divided today would barely cover up a few of the mud holes on the roads in each township opposition ceased.

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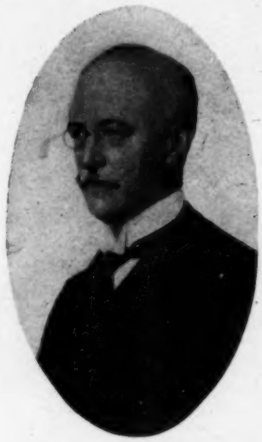
Bankers Help Good Roads Cause

MILWAUKEE, WIS., May 6—The Wisconsin Bankers' Association, member of the American Bankers' Association, has taken a decided interest in the good roads problem as an economic proposition, and is now co-operating with the various agencies which are promoting the improvement, construction and maintenance of highways. Francis A. Cannon, secretary of the Milwaukee Citizens' Business League and founder of the Chicago-Milwaukee Good Roads Association, has consented to address the annual meetings of all district societies or groups which are being held throughout the state at this time. The banks in the rural communities are especially active in the movement, realizing the value of good roads to agricultural prosperity and by the same token the prosperity of the banks.

Rudolf Diesel Honored

Famous Inventor Is Made an Honorary Member of the American Society of Mechanical Engineers

Doctor Had Little to Say Concerning Use of His Motor for Commercial Vehicles



Dr. Rudolf Diesel

THE famous inventor of the Diesel engine, Dr. Rudolf Diesel, Munich, Germany, was made an honorary member of the American Society of Mechanical Engineers at a meeting held at the building of the Engineering Societies at 29 West Thirty-ninth street in New York City on April 30, and thereafter Dr. Diesel lectured on the development of the Diesel engine. The large hall and the gallery were packed with engineers of all persuasions.

The lecture was illustrated with lantern slides and was largely devoted to an ocular photographic demonstration of the recent wide application of the Diesel principle in many countries, partly as an economical source of power for industrial purposes, and very largely of late, for marine and naval purposes, for which the compactness of a Diesel installation and its liquid fuel stores, in comparison with a steam plant with its coal bunkers, is of the greatest economical as well as tactical value. It was brought out, on the other hand, that the difficulties in adapting Diesel motors to the propulsion of locomotives have been very great and that the results are yet uncertain; also that there is little to be said, as yet, about the results achieved with modified Diesel engines turned out by Dr. Diesel in 1909 with a view to their use for automobile trucks; one of these was a single-cylinder engine intended to drive a dynamo in a gas-electric truck installation; another was a four-cylinder reversible engine developing 30 horsepower at 600 revolutions. The success of the Diesel principle in other directions has been so much greater. The leading ideas in this principle are (1) compression of atmospheric air so high (2) that almost any liquid hydrocarbon will be ignited when (3) forced into the air, no other means for ignition being used, and (4) a gradual injection of the fuel producing a gradual combustion with strongly sustained expansion of the gases and consequently a high mean effective pressure, high piston speed and great fuel economy.

Diesel Overcame Many Obstacles

The greatest obstacle met and overcome in building Diesel engines of all kinds has had to do with mechanical means for obviating or compensating for the expansion of materials. The latest light types of Diesel engines, whose speed reaches 600 revolutions per minute, weigh 110 pounds per horsepower.

Some of the interesting points made in Dr. Diesel's lecture may be summarized as follows:

The first Diesel engine, made in 1893, burst at its first explosion, but demonstrated the ignition principle. The second one was also a failure in practice. Only faith in mathematics sustained the inventor.

Without the assistance of Adolphus Busch, the St. Louis brewer, all further efforts might have been abandoned. The Diesel patents were acquired by him.

Mr. E. D. Meier, former president of the American Society of Mechanical Engineers, was helpful, together with Mr. Busch, in advancing the cause when it was struggling.

Both the four-cycle type of engine, which Dr. Diesel prefers for industrial work, and the two-cycle type, which is making more headway for marine work, have been made reversible by means of a cam movement. In a two-cycle, six-cylinder 300-horsepower engine the reversal occupies 3 seconds.

Horizontal engines work as well as vertical ones, and please for marine purposes in many quarters because the external forms remind the mariners of the accustomed steam plant.

Nearly all submarine boats are equipped with Diesel engines, and 130 are now under construction intended for this work in the navies of different countries, seventeen in this country.

Mineral oils, the oil of coal tar and vegetable oils can be used with equal success in Diesel engines. The tar production of Germany alone if used for fuel in Diesel engines would supply all the fuel needed for powering all the merchant and naval vessels of the world.

The monopoly in mineral oils has been broken in Europe without recourse to legislation or restriction, solely through the possibility of installing Diesel engines to be run with different fuels.

The most economical use of coal is to distil it into coke, tar and Diesel fuel.

Diesel engines in Europe were at first made with crossheads; but now usually without. The American Diesel engines were made without crossheads from the start and are in all respects equal to the European type.

There are 300 Diesel installations in the United States with an aggregate of 150,000 horsepower.

The main reason for the comparatively limited use of Diesel engines as a power source for factories, electric light plants, hotels, department stores and other large establishments in the United States, is given by Dr. Diesel, upon the authority of American engineers consulted by him, as residing in the indifference of the average American business man to operative economy as compared with first cost. Most of them would hesitate to pay for a Diesel installation though guaranteed that it would pay for itself in two years. But this condition is now rapidly changing.

The Diesel ship, for naval or merchant work, is characterized by total absence of smokestacks and funnels, making a clear deck, and by all-aft location of the entire power plant.

The *Selandia*, built at the works of Burmeister & Wain, at Copenhagen, Denmark, is the first large all-Diesel ship, being equipped with two four-cycle, six-cylinder Diesel engines of 2,500 horsepower and having a cargo displacement of 7,400 tons. It was built for East Asiatic trade and has completed its first trip to Indo-Chinese waters.

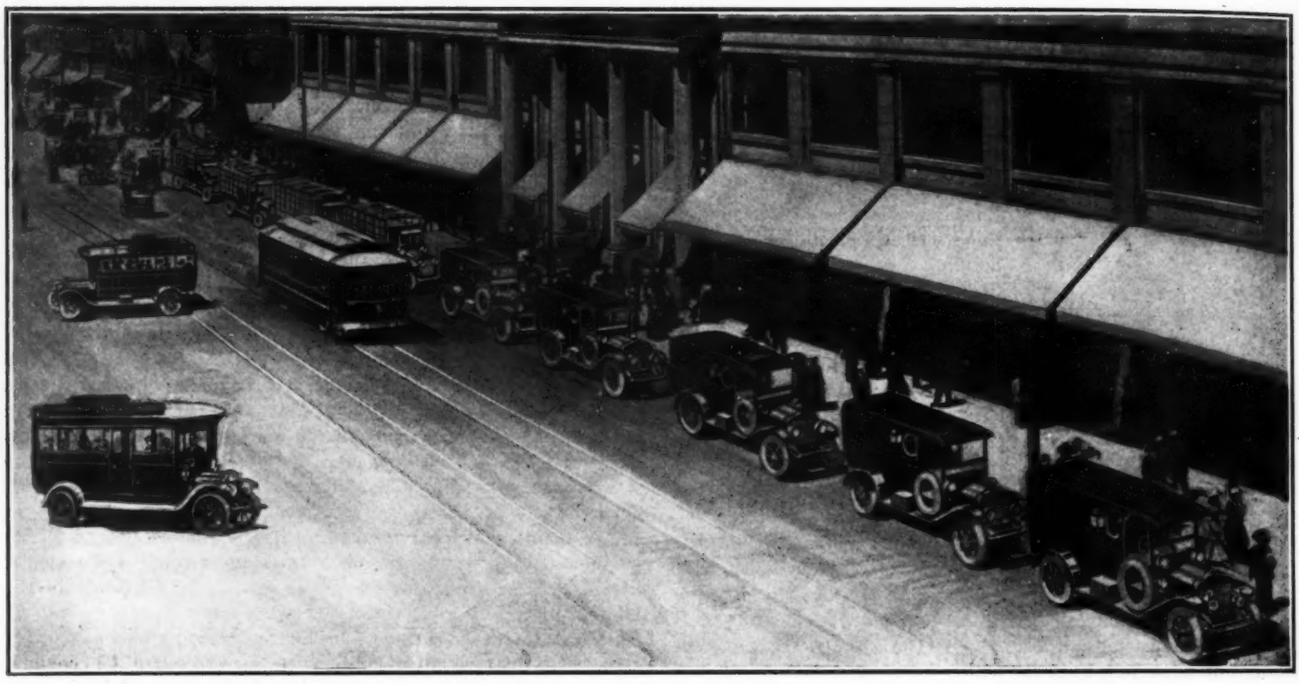
Wider Gauge Helps Alaska Travel

SKAGWAY, ALASKA., April 20—By widening the gauge of its sleds to standard 56-inch tread, the White Pass and Yukon Railroad Company has removed one of the obstacles to the use of the automobile in Alaska.

Heretofore the gauge has been 36 inches and as a result the snow packed under the runners in such a way as to make traction exceedingly difficult for a car. The use of automobiles in the far north as a substitute for horses is being considered in a practical way.

The trip from White Pass to Dawson takes from 5 to 8 days under the old conditions, but with sleds of 56-inch tread the automobile can undoubtedly cut down the time needed for the passage.

While an attempt to go to Dawson in an automobile failed last fall owing to the fact that the rivers were not frozen hard enough to bear the weight of the car and the boats were laid up because of floating ice, the trip demonstrated that on the trails the car was much swifter and more economical than any of the other means of transportation.



A portion of the battery of White trucks used by Marshall Field & Company's Chicago department store

FINDS Trucks Efficient—One of the many large companies to be converted to the use of the automobile truck for delivery work is Marshall Field & Company, Chicago, Ill. This concern has a large fleet of White delivery cars in commission and finds them very efficient and economical.

Hoboken to Have Auto Fire Truck—The West Hoboken town council awarded the contract for an automobile fire truck. The council is to pay $5,150 for the apparatus and it is to be delivered about July 1.

Wilson Henderson, Manager—Fred E. Wilson, formerly sales manager of the Marion Sales Company, Indianapolis, Ind., has just been appointed sales manager of the Henderson Motor Car Company, Indianapolis, Ind.

Governor Tener Pays Fine—Governor Tener was notified by the police authorities of Reading, Pa., recently, that he had exceeded the speed limit while passing through that city and that his fine amounted to $11.25. A check for the amount was sent to the Reading authorities.

Warning for Motorists—Philadelphia automobilists who make Sunday trips to Atlantic City have run against a snag in the vicinity of Paulsboro, N. J. A week ago it is claimed that no less than 100 cars were stopped on the main thoroughfare in the town and 12 drivers were arrested. All were either fined or were forced to enter bail for hearings.

Rowan Is Cole Agent—The Henry A. Rowan, Jr., Company has opened showrooms at 612-614 North Broad street for distribution of the Cole car in Philadelphia, in addition to which a service station containing 30,000 square feet of floor space is maintained at 2028 Sansom street. The president of the new concern is Henry A. Rowan, Jr., and W. B. Danenhower is vice-president and general manager.

Large License Collection in Ohio—The sum of $56,941.10 was turned over to the state treasurer at Columbus to-day as a result of the collection of money for automobile licenses issued during the year. This money under the law will be credited to the good roads fund and expended in the improvement of highways in various parts of the state. This was the second installment coming from that source during the year.

New York Automobile Army—The office of the secretary of state of New York announces that nearly 59,000 automobile owners have been registered and more than 30,000 chauffeurs' licensed since the beginning of the year. The state has received more than $500,000 in owners' fees and more than $50,000 in chauffeurs' fees. The New York City office alone has registered 36,500 owners and licensed nearly 24,000 chauffeurs.

Locomobile Shows Sales Gain—That the Locomobile Company is rapidly increasing its business is shown by a report made by J. F. Plummer, the New York manager, who says up to April 20, the close of the present fiscal year, all of the leading branches of the company show a big gain over last year as follows: Chicago, 59 per cent.; New York, 58 per cent.; Boston, 50 per cent.; Philadelphia, 47 per cent.; San Francisco, 37 per cent.

Mission Girls' Joy Ride—The girls in the sewing classes of the city mission, Omaha, Neb., were treated to a joy ride about the city recently in the machines of some of Omaha's wealthiest citizens. There are over 100 girls ranging in age from 7 to 15 years in these sewing classes. They have been meeting once a week to learn to sew and "help mother." All of them are from poor families, and many of them had never been in an automobile before.

Dunlop Tire Branch—The Dunlop Tire-Rubber Goods Company has opened a branch office in Victoria.

Darling Used-Car Head—K. C. Darling is the head of the used-car department of the Alco Company, of New York.

New Quarters for Utah Concern—The Campbell Auto Company, Salt Lake City, Utah, distributors of the Michigan and Premier, will move to new quarters on Fourth South street.

Gallient Is Pierce Auditor—Edward J. Gallien, Jr., has been appointed auditor and assistant to the president in the office of the Pierce-Arrow Motor Car Company, sales department, Buffalo, N. Y.

New Benz Management—The management of the affairs of the Benz Company, New York, is now handled by Paul R. Pelz, one of the directors of the Benz Company, of Mannheim, and Walther, Mass.

Gross to Distribute Federal—The Philip Gross Hardware Company, Milwaukee, Wis., has been appointed local distributor of Federal tires, manufactured by the Federal Rubber Manufacturing Company, of Milwaukee.

Jackson Minneapolis Service Building—The Jackson Motor Car Company branch for the Northwest has taken possession of a new building in Minneapolis, Minn., with a large floor-space, storeroom and service department garage.

Von Rottweiler a Busy Man—George Von Rottweiler is now chief engineer of the William Galloway Company and factory manager of the Dart Manufacturing Company, Waterloo, Ia., maker of Dart delivery trucks and motors.

Louisville Branch Established—The Borgerding Motor Car Company, New Albany, Ind., has established a branch in Louisville and will maintain an office and salesroom at the southwest corner of Third and Breckenridge streets.

Bellman Becomes Manager—The Milwaukee Auto Tire & Supply Company, Milwaukee, Wis., distributor for the Republic Rubber Company, has engaged R. H. Bellman, formerly of the Chicago branch of the United States Tire Company, as manager.

New Columbus Repair Shop—The Metal Welding & Brazing Company is the name of the new concern which has opened a shop in Columbus, O., for the purpose of repairing automobiles. The concern makes a specialty of welding cylinders and crankcases.

To Assess Cars at One-Third Cost—At the annual meeting of assessors in Freeborn county, Minn., at Albert Lea, it was decided to assess automobiles at one-third cost. For the 140 cars owned by 130 persons in the county seat the average value is estimated at $1,200.

To Distribute Guide Lamp—The Auto Lamp & Radiator Company, Milwaukee, Wis., has been appointed distributor of Guide automobile lamps and will conduct a large service shop for lamp and radiator repairs and reconstruction. M. E. Kingsley and S. Holny are the owners.

Stearns in Salt Lake City—The Monarch Motor Car Company opened for business recently in a temporary showroom, Salt Lake City, Utah, but plans are now out for a new building for the company. A. C. Lee has come from Dallas, Tex., to take the position of sales manager.

Girdwood Leaves Ford—R. F. Girdwood who has been manager of the Ford company's Montreal branch, has severed his connection with that company and has accepted the agency for the Reo, and will locate a garage, showroom and repair shop at the corner of Guy and Dorchester streets.

Canal Commission Orders Cars—Ten automobiles passed through New Orleans La., recently consigned to the Canal Commission at Colon. This is a part of the recent order for automobiles for the use of the police and engineers, whose duties require their presence at different points of the canal.

Contractor Designs Trailer—Warner B. Butts, a Syracuse, N. Y., contractor, has ordered a Ford car which he intends to use in an odd way. He has designed a trailer with two wheels fitted with pneumatic tires and a platform body for carrying ladders, lumber and tools from his workshop to his various contracts.

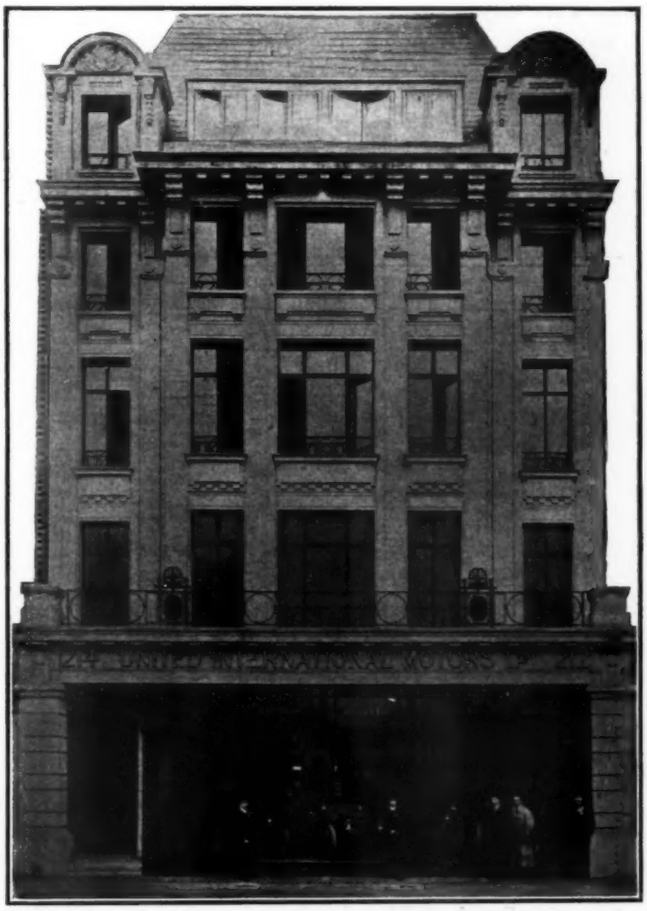
Large Shipment to Australia—Every steamship that is sailing from Puget Sound for the Antipodes is carrying all the automobiles it can accommodate. On the steamship Strathgyle, which will sail from Everett, Wash., on May 15, there will be sixty-three automobiles, total value of which is estimated at $72,600. All are destined for Australia.

Lippard-Stewart in New York—The Lippard-Stewart Motor Sales Company, of New York, has been organized to handle Lippard-Stewart commercial cars in New York City.

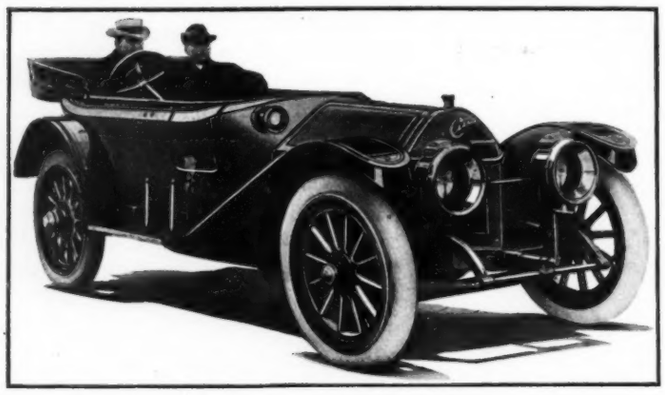
Coleman & Bentel's Building—The Coleman & Bentel Company, Los Angeles, Cal., has completed negotiations for a new concrete building, which will be four stories in height.

Dealers in Fond du Lac Organize—The Fond du Lac Automobile Dealers' Association has been organized at Fond du Lac, Wis., with E. W. Clark as president; R. H. Lee, vice-president; Edward G. Mitchell, secretary, and W. C. Reinig treasurer. The association plans to conduct an annual show in addition to giving attention to problems confronting dealers.

Minnesota Secretary's Report—April receipts for automobile license tags for 1912 are reported by the Minnesota secretary of state as $16,101, as compared with $5,082 last year. During the month 7,600 automobile tags were issued, 1,398 motorcycle licenses, 198 for chauffeurs and 57 for automobile dealers. Seven clerks were required to keep up the work. For this year 18,500 licenses have been issued for automobiles as compared with 19,200 for the entire year of 1911. April receipts were the largest since the office was opened.



European headquarters of United States Motors in London



Burman and Chas. Cutting in 100-horsepower Cutting

Tire Service Station Opens—The Kelly-Springfield Tire Company's new service department in Cleveland, O., has been put into operation.

Another Branch of Selleck—The Selleck Auto Equipment Company, Buffalo, N. Y., will open a branch office in the Burrell building soon.

Leach Is Woods' Manager—R. W. Leach has been appointed manager of the Woods Electric Vehicle Company branch in St. Louis, Mo.

Pennsylvania Issues Many Tags—The State Highway Department of Pennsylvania, Harrisburg, Pa., has passed the 40,000 mark in the issuance of automobile licenses.

Security Reliner Company Moves—Due to increased business demands, the Security Reliner Sales Company has moved to more spacious quarters at 250 West Fifty-fourth street, New York City.

Kilgore Shock-Absorber Moves—The Boston salesrooms of the Kilgore Manufacturing Company, maker of the Kilgore shock-absorber, have been moved from Copeley square to 883 Boylston street.

Automobile Club Changes Name—It was decided at a recent meeting of the Kearny Automobile Club, Newark, N. J., to change the name of the organization to the West Hudson Automobile Club.

Automobile Parade in Houston—There will be at least 1500 automobiles in the Houston, Tex., parade over the Houston-Galveston shell road and causeway in celebration of the inauguration of the causeway, May 25.

Brookline Police Car—The town officials of Brookline, Mass., having added several pieces of motor apparatus to its fire department, decided that its chief of police should also have a car and so purchased a 1912 Marmon.

Fire Damage in Omaha.—The three-story building occupied by the Nebraska Cartercar Company, Omaha, Neb., caught fire recently and was damaged to the extent of $10,000. There were twenty machines in the building at the time.

Hupp's Recent Innovation—The R-C-H Corporation, Detroit, Mich., will hereafter supply its men with working clothes. Each employe has received two suits of overalls, and these will be kept cleaned and repaired for him.

Bethlehem's Club Meeting—The board of governors of the Lehigh Valley Motor Cub, Bethlehem, Pa., held a meeting recently and decided to again distribute gratis, road drags to the farmers and road supervisors through this section.

Riekse Disposes of Cutting Interest—David C. Riekse has disposed of his interest in the Grand Rapids, Mich., Cutting car agency to his cousin, Henry J. Riekse, who will continue the agency under the name of the Riekse Automobile Company.

Fox with Standard Electric—On account of the rapid increase in the number of dealers and the number of inquiries regarding care, Harry Fox, Jr., has been appointed one of the special agency representatives for the Electric Car Company, Jackson, Mich.

Tire Company's New Agencies—The following concerns have taken the agencies for Great American Tires: Seldon Motor Car Company, Houston, Tex.; E. S. Sporting Goods & Auto Supply Company, Athens Ga., and J. B. McClelland, Sault Ste. Marie, Mich.

Burman's New Roadster—Bob Burman, the racing driver, has a new 100-horsepower Cutting roadster, made by the Clarke-Carter Automobile Company, Jackson, Mich. The car has a pointed radiator and the seat is located over the rear wheels, necessitating a specially long steering gear.

Johns-Manville Company Moves—The executive offices and New York City showrooms of the H. W. Johns-Manville Company, manufacturers of asbestos, magnesia and electrical supplies, were moved recently to the new twelve-story H. W. Johns-Manville building, Madison avenue and Forty-first street.

Guatemala a Good Field—George R. Emerson, of Boston, Mass., who now sells Marmon cars in Guatemala, says that the automobile business in the South American states is growing very largely and that American cars are now making much headway there. The roads are being improved and there is a big demand for used cars.

Selling Arrangement Terminated—The selling arrangement which has existed for some time past between Claire L. Barnes & Company, Chicago, Ill., and the Billings & Spencer Company, Hartford, Conn., has been terminated by mutual consent. The Barnes Company will continue to market as heretofore the products of E. B. Van Wagner Manufacturing Company, Fort Pitt Steel Casting Company and Simmons Manufacturing Company. The Billings & Spencer Company will market its forgings and tools direct to the trade.

Automobile Incorporations

AUTOMOBILES AND PARTS

AVON, MASS.—Victoria Aeroplane, Automobile and Amusement Company; capital, $15,000; to engage in a vehicle-hiring business. Incorporators: Joseph H. Geary, Frank J. Burke, Alfred F. Gay.

CLEVELAND, OHIO.—Cleveland Motor Truck Manufacturing Company; Capital, $1,500; to manufacture commercial automobiles.

DETROIT, MICH.—England Manufacturing Company; capital, $50,000; to make steel doors and other parts for automobiles. Incorporators: John W. Foster, Frederick England, J. Albert Davis.

DES MOINES, WIS.—Des Moines Rambler Company; capital, $25,000; to deal in automobiles. Incorporators: J. Given Chase, H. S. Chase, Earl Scripps.

DOVER, DEL.—Gulf Coats Auto Supply Company; capital, $20,000; to deal in automobiles.

DOVER, DEL.—Republic Motors Company; capital, $2,000; to deal in automobiles. Incorporators: Stephen C. Fiero and others.

MALVERN, ARK.—Panama Manufacturing Company; to manufacture freight automobiles. Incorporators: S. F. Sherman and others.

MONTREAL, QUE.—Leap Wheel Company of Canada, Ltd.; capital, $500,000; to manufacture and deal in automobiles.

MUNCIE, IND.—Muncie Automobile Company; capital, $15,000; to deal in automobiles. Incorporators: M. T. Hanley, J. J. MacInnis, F. A. Hanley.

PELHAM MANOR, N. Y.—Diamond Motor Car Company; capital, $10,000; to deal in automobiles. Incorporators: Carl W. Rundlett, Charles W. Jaycox, Frank Davis.

NEW YORK CITY.—Field Electric Bus Company; capital, $10,000; to manufacture electric cabs, omnibuses and other vehicles. Incorporators: William Eastman, Cornelius J. Field, Burgess Osterhout.

NEW YORK CITY.—Garden Taxicab Company; capital, $15,000; to deal in pleasure cars and taxicabs. Incorporators: Richard Green, G. Rudolph Schulze, John J. Harvey.

NEW YORK CITY.—Knickerbocker Motor Car Sales Company; capital, $10,000; to engage in the automobile business. Incorporators: Benjamin Harris, Robert L. Noah, Wm. L. Robertson.

NEW YORK CITY.—Lippard-Stewart Motor Sales Company; capital, $25,000; to deal in automobile trucks. Incorporators: Thos. W. Pelham, Thos. W. Pelham, Jr., Clifford E. Dunn.

NEW YORK CITY.—Magneto Dynamotor Company; capital, $100,000; to manufacture and deal in machinery, motors, etc. Incorporators: G. T. Henry, F. B. Moody, B. T. Moody.

NEW YORK CITY.—Thomas Motor Cab Selling Company; capital, $100,000; to sell automobiles and parts.

SHIPPENSBURG, PA.—Shippensburg Auto & Hardware Company; capital, $25,000; to deal in automobiles. Incorporators: Jacob T. Railing and others.

WILMINGTON, DEL.—Lansden Company; capital, $1,000,000; to manufacture automobiles. Incorporators: W. J. Maloney, W. D. Schwartz, W. L. Case.

Knight Tire Agent—The Franklin Auto & Supply Company, Milwaukee, Wis., is a new agent for Knight tires.

Twyman Branch in Dayton—The Twyman Motor Car Company, Columbus, O., has opened a branch in Dayton, O.

New Company in Omaha—The VanBrunt Automobile Company, Council Bluffs, has opened a salesroom in Omaha, Neb.

Quakertown's New Club—The Perkasie Automobile Club, Quakertown, Pa., has been organized with Dr. A. E. Fretz as president.

Schenkel Treadwell Representative—Fred G. Schenkel has become a factory representative of the Treadwell Engineering Company, Easton, Pa.

Worman, Baker Advertising Manager—H. A. Worman has been appointed advertising manager of the Baker Motor Vehicle Company, Cleveland, O.

Minneapolis Drivers Seek Charter—Motor truck drivers and chauffeurs of Minneapolis, Minn. have petitioned for a charter from the international body.

Rochester Electric Moves—The Rochester Electric Motor Company has moved its office and salesroom to the new plant at 266 Lyell avenue, Rochester, N. Y.

Overland Ships 900 Cars—The Willys Overland Company, Toledo, O., shipped 900 cars in a single week last month. It plans to make 25,000 cars this year.

Charles Abresch Dies—Charles Abresch, president and treasurer of the Charles Abresch Company, Milwaukee, Wis., died April 28 at Milwaukee aged 62 years.

Apperson in Galveston—C. M. Barber, factory representative of the Apperson Brothers Automobile Company, has established state headquarters in Galveston, Tex.

Kisselkar Takes Larger Quarters—A new service building has been erected by the Kisselkar Company in Chicago, Ill. Similar buildings are being erected in other cities.

Ellwood Automobile Club Elections—J. C. Offutt has been elected president of the Ellwood Automobile Club, Ellwood, Pa., and A. E. Conner is now secretary and treasurer.

Dorr Fiat's Seattle Manager—Eugene E. Dorr is the latest addition to the managers in Seattle, Wash. The new company is called the Fiat Motor Company of Seattle, Wash.

Champan-Love's New Headquarters—The Champan-Love Auto Company, Washington, D. C., recently appointed agent for the King has leased the building formerly occupied by Wine & Benson.

Brush Makes Long Run—F. H. Bachmann, a traveling salesman, has arrived in New York City after making a round trip between Texas and Detroit in a Brush runabout. Mr. Bachmann covered 11,000 miles.

Cook & Stoddard's New Building—The Cook & Stoddard Company, Washington, D. C., agent for the Pierce-Arrow, Cadillac and Baker electric, has taken possession of the new building at 1136-40 Connecticut avenue.

Westerman Takes Charge—B. M. Westerman, formerly connected with the Oldsmobile Company and now assistant sales manager of the Mathewson Automobile Company, has taken charge of the Philadelphia business.

C. L. Davis Resigns—C. L. Davis, manager of the Wyoming Valley Motor Car Company, Wilkes-Barre, Pa., has tendered his resignation to that company and has accepted a position with the Matheson Automobile Company.

Gives Up Retail Department—The Omaha, Neb., branch of the Studebaker Corporation has decided to give up its retail department, and to devote its time entirely to the wholesale work. The E. R. Wilson company has taken over the retail sales of the Flanders and E.M.F. cars.

Record Order for Trucks—The International Motor Company, maker of the Mack and Saurer trucks, has received orders from two companies for seventy-five commercial vehicles. The Star Motor Delivery Company, Chicago, Ill., has ordered fifty cars and the City Fuel Company, also of Chicago, has ordered twenty-five.

Jewell Resigned from Franklin—J. W. Jewell has resigned from the engineering department of the H. H. Franklin Manufacturing Company, Syracuse, N. Y., and has associated himself with the New York wholesale branch of the R. C. H. Mr. Jewell will have charge of the service station of the company.

Pierce Truck in Honolulu—In adopting modern business methods the people of our island possessions would appear to be as fully abreast of the times as those of this country. As an instance of this the Oahu Ice & Electric Company, of Honolulu, has just placed in commission a Pierce-Arrow, worm-driven motor truck of 5 tons capacity, which it will use in the Hawaiian city for the hauling of ice.

President Taft in Cole car at Concord, N. H.

Automobile Incorporations

WORCESTER, MASS.—Worcester Wind Motor Company; capital, $30,000; to build motors. Incorporators: Victor J. Johnson, Frank L. Erickson, Eric C. Lindberg, Charles J. Johnson.

GARAGES AND ACCESSORIES

BOWLING GREEN, OHIO.—Star Machinery & Garage Company; capital, $5,000; to conduct a general supply and repair business. Incorporators: E. H. McKnight, J. L. Smith, Hilton T. Dilte, Ida Ray McKnight, A. Nanette McKnight.

CEDARTOWN, GA.—Cedartown Garage & Tin Company; capital, $1,600; to conduct a garage and repair shop. Incorporators: I. T. Mee, W. R. Biggers.

CHICAGO, ILL.—Packer Auto Specialty Company; capital, $2,500; to deal in automobile accessories. Incorporators: William Bangs, Laird Bell, William C. Bayden.

LOUISVILLE, KY.—Louisville Lozier Company; capital, $20,000; to deal in automobiles. Incorporators: Howard Lothrop, Herbert T. Martin, David T. Marantette.

NEW YORK CITY.—Automobile Fault-Finder & Anti-Forgery Electric Pen Company; capital, $50,000; to manufacture accessories. Incorporators: P. Henry Conty, D. Dinsdah, P. Ghadiali, Harry Weinberger.

NEW YORK CITY.—L. A. W. Carbureter Company; capital, $100,000; to manufacture automobile accessories. Incorporators: Norman Leinan, Silas Heinemann, Hanbury Watkins.

NEW YORK CITY.—B. F. Goodrich Company; capital, $45,000,000; to take over the interests of the B. F. Goodrich Companies of New York and Akron, manufacturers of rubber tires and other goods. Incorporators: Bertram G. Work, Charles B. Raymond, David M. Goodrich.

NEW YORK CITY.—Polack Tyre & Rubber Company; capital, $700,000; to manufacture tires and rubber goods. Incorporators: Max Polack, Adelbert Hanschild, Hugo Hoffstaedter.

SAVANNAH, GA.—Savannah Auto Repair Company; capital, $10,000; to engage in the repair business. Incorporators: William T. De Borde, D. D. Pounder, Shelby Myrick.

ST. LOUIS, MO.—Dilke Garage Company; capital, $2,000; to engage in the garage business. Incorporators: C. H. Smith, S. K. Huthsing, Samuel Broadbent.

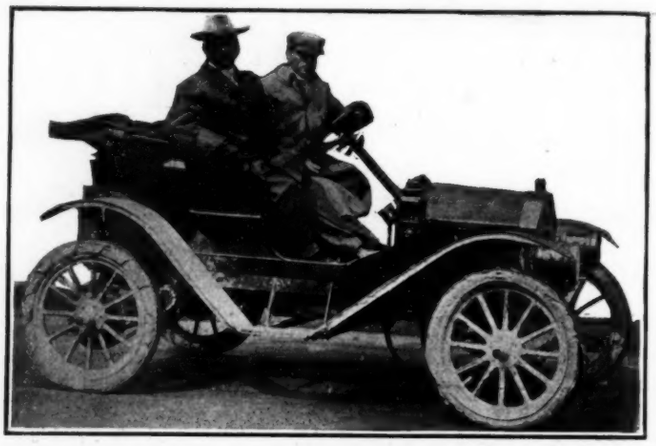
WILMINGTON, DEL.—Never Puncture Tube & Tire Company; capital, $1,500,000; to manufacture a punctureless tire. Incorporators: E. E. McWhiney and others.

CHANGES OF CAPITAL

BEAUMONT, TEXAS.—Queen City Motor Company; capital stock increased from $5,000 to $8,000.

DETROIT, MICH.—Invincible Starter Company; capital increased from $1,000 to $35,000.

YORK, PA.—Barber Motor Car Company; capital stock increased from $10,000 to $30.000.



$450 Brush traveling salesman's outfit that covered 11,000 miles

News of the Garages

A Pulaski Garage—The Garage Company, Pulaski, Va., is planning a 75-foot addition to its present building.

Brunell to Open Garage—Lewis Brunell will open an automobile garage in the Levengood building, Altoona, Pa.

Thompson Sells Garage—L. D. Thompson sold the Thompson Garage to his brother, D. Scott Thompson, of Wilkes-Barre, Pa.

Sanderman in Old Business—W. S. Sanderman has again embarked in the garage business, having opened a place at 59 Boylston street, Cambridge, Mass.

The Lytle Garage—Business has increased to such an extent that the Lytle Garage Company, Oil City, Pa., has erected a large building adjacent to its present plant.

Church Will Own Garage—The Tabernacle Presbyterian Church, Pittsburgh, Pa., has just given a contract to erect a garage costing about $30,000. It will be two stories high.

Foundation Laid in Oakland—The concrete foundation of the new garage of the Oakland Auto Company, Oakland, Neb., was laid last week. It will be a cement block building.

Moves into New Quarters—The Omaha Auto Company, Omaha, Neb., has moved into new quarters at 2010 Farnam street. A big fireproof iron garage is being erected behind the showrooms.

Fireproof Building in Baltimore—The Eastern Motor & Conveyance Company will build a public garage and automobile repository at Fayette street and Philadelphia avenue, East Baltimore, Md.

Garage School Is Lessee—The Kelly-Wood Real Estate Company has leased a large building for a term of years to the Pittsburgh School of Automobile Engineering, Pittsburgh, Pa., at a total rent of $9,000.

Three New Garages in Pittsburgh—W. Murray Carr, of the Franklin Motor Car Company, has arranged for the erection of a three-story garage and salesroom on North Craig street. It will be completed September 1.

Lyons Building in Grand Forks—J. W. Lyons, Franklin dealer in this territory, is building a new garage, 100 by 50 feet, with a machine shop, 50 by 40 feet. The building will be ready for occupancy about June 15.

Suggests Municipal Garage—Fire Chief Tremblay has submitted to the Montreal, Que., board of control a recommendation that the city build at a cost of $100,000 a civic garage and workshop where all apparatus belonging to the fire and police departments may be repaired.

Addition Doubles Capacity—The capacity of the City Garage will be doubled by the erection of an addition. The old Haverkate residence, a landmark, adjoining will be removed to make room, and the enlarged garage will have entrances both on Eighth street and Columbia avenue, Grand Rapids, Mich.

Everitt Agents to Run Garage—T. P. Barnhart & Company, Everitt agents, Washington, D. C., have taken a 6-year lease on the building at 1707 Fourteenth street and, after extensive improvements have been made, will take possession. In connection with the sales and service departments it is planned to run a garage to be known as the Society Garage. It will be fitted up with a complete modern equipment.

Salt Lake Garage Adds to Equipment—The Salt Lake Automobile Company has taken over the garage, showrooms and complete equipment of the Sharman Automobile Company The Salt Lake company is a new concern organized a few weeks ago to handle the Franklin car for this territory.

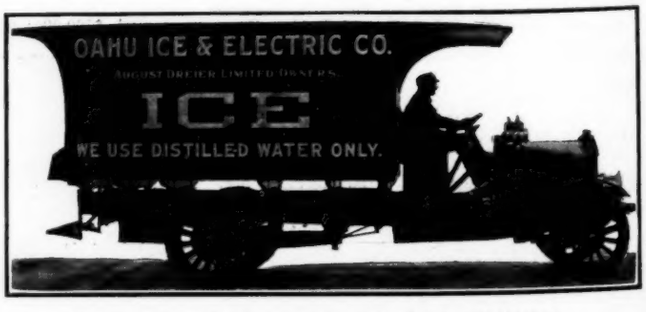
New Automobile Agencies

PLEASURE CARS

Place	Car	Agent
Alliance, O.	King	E. P. Kinne.
Atlanta, Ga.	Haynes, Imperial and Matheson	Sigma Electric Co.
Aurora, Neb.	Lion	J. S. Sauls.
Beatrice, Neb.	Cartercar	G. O. Rains Auto Co.
Baltimore, Md.	Hupmobile	Chesapeake Motor Car Co.
Basin, Wyo.	Cartercar	Shedd-Sizer Investment Co.
Boston, Mass.	Michigan	Burke & Richards.
Callaway, Neb.	Hupmobile	D. F. Sherrel.
Denver, Colo.	Paige-Detroit	Western Motor Car Co.
Des Moines, Iowa.	Paige-Detroit	Means Auto Co.
Exira, Iowa.	Cartercar	P. K. Jensen.
Fremont, Neb.	Nyberg	J. F. Lehman
Fullerton, Neb.	Cartercar, Metz	T. N. Sheaff & Son.
Galveston, Tex.	Pullman	Texas Garage.
Hastings, Neb.	Nyberg	Hughes Auto Co.
Lincoln, Neb.	Pullman	Pullman Motor Sales Co.
Los Angeles, Cal.	Case	Vance-Canavan Motor Co.
Louisville, Ky.	Cole	Borgerding Motor Car Co.
Louisville, Ky.	Maxwell	Clark Motor Car Co.
Louisville, Ky.	Pullman	Louisville Lozier Co.
Madisonville, O.	Franklin	U. G. Blaney.
Marion Junction, S. Dak.	Nyberg	William Redding.
Marion, O.	Stevens-Duryea	C. C. Stoltz.
Minatare, Neb.	Hupmobile	V. C. Redding.
Nashville, Tenn.	King	Southern States Sales Co.
Neligh, Neb.	Hupmobile	Winn & Wattles.
Omaha, Neb.	Regal	T. G. Northwall Co.
Philadelphia	Havers	V. P. Padula.
Philadelphia	Lenox	Boulevard Sales Co.
Portland, Ore.	Oakland	Pacific Motors Co.
Portland, Ore.	Pathfinder	Gerlinger Motors Co.
Providence, R. I.	Pilot	Pilot Automobile Co.
Salina, Kan.	Nyberg	Riles Garage.
San Diego, Cal.	Oakland	Young & Lloyd.
Scranton, Cal.	Alco	L. M. & C. A. Connell
Stanton, Neb.	Moline	J. R. Stuker.
St. Paul, Minn.	McFarlan Six	White Bear Auto Co.
St. Paul, Neb.	Hupmobile	St. Paul Auto Co.
Tacoma, Wash.	Detroit Electric	H. B. Smith.
Toledo, O.	Buick	McLeary Engineer Co.
Toledo, O.	Empire	Crist Motor Sales Co.
Toledo, O.	Jackson	L. L. Law.
Wayne, Neb.	Cartercar	Valley Motor Co.
Wisner, Neb.	Lion	Murray & McGill.
York, Pa.	Studebaker	Snyder Auto Co.

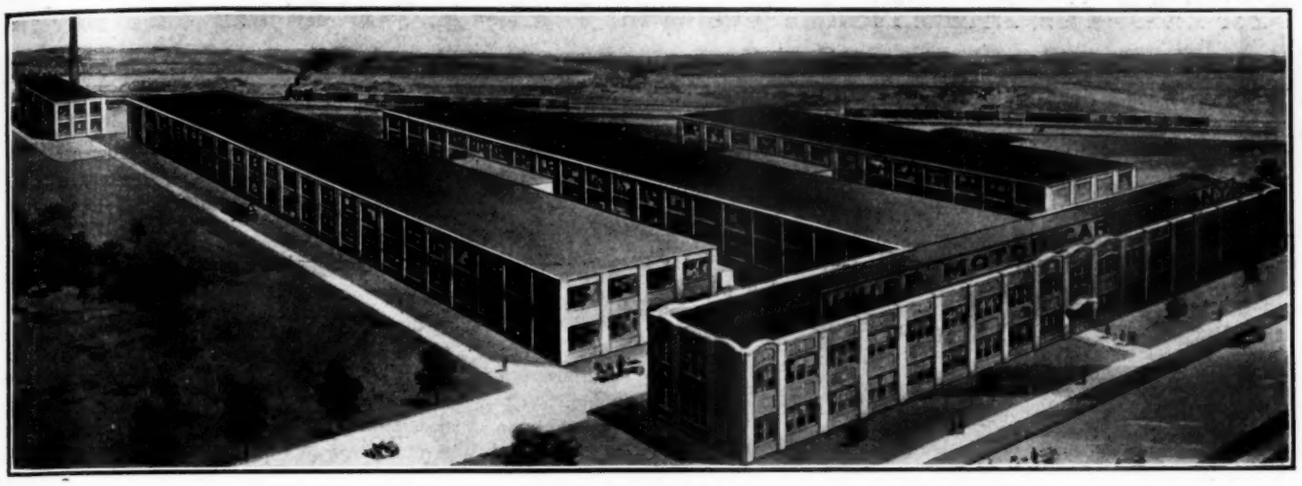
COMMERCIAL VEHICLES

Boston, Mass.	Lansden	William S. Taylor.
Dayton, O.	Lippard-Stewart	Standard Motor Car Co.
Minneapolis, Minn.	Federal	Pence Automobile Co.
Portland, Ore.	Little Giant	Gerlinger Motors Co.
Syracuse, N. Y.	Int'l Harvester Co.	William H. Bissell.



Pierce-Arrow 5-ton truck used in Sandwich Islands

Factory Miscellany



Bird's-eye view of the new plant of the Hupp Motor Car Company at Detroit, Mich.

HUPMOBILE Factory a Model—With its three huge two-story main buildings, the immense administration building and upwards of a half-mile of railroad tracks included within the property, the new plant of the Hupp Motor Car Company is a model of its kind. In addition to the structures mentioned there are an electrical transformer house for supplying light and a boiler house for furnishing heat. Through the medium of this plant the Hupp company has been enabled to more than treble the capacity of its former plant, and there yet remains sufficient space to erect two additional buildings to take care of the expansion of business that is naturally to be expected to follow upon this stroke of enterprise. A well-equipped kitchen and dining hall with a seating capacity of 400 is among the facilities.

From Buffalo to Batavia—The Whylan-Nelson Motor Car Company, Buffalo, N. Y., is arranging for the removal of its manufacturing plant to Batavia, N. Y. Frank V. Whylan is president.

Menominee Gets Truck Plant—D. F. Poyer & Company has purchased the Andrew Gram building in Menominee, Mich., and will establish a factory for the manufacture of automobile trucks.

To Make Automobile Hubs—The Hayes Wheel Company, Jackson, Mich., has purchased the recently dismantled plant of the Prouty Manufacturing Company in Albion, Mich., and will begin the installation of machinery for making automobile hubs.

Disco's Detroit Service Department—The Ignition Starter Company, manufacturer of the Disco starter, has found it necessary to open a special service department for the accommodation of Detroit motorists. The department will be located in the Dodge Power building, with George Waller in charge.

Reo's Canadian Factory Expanding—The increase of business of the Reo Motor Car Company has necessitated the purchase of 4 acres of ground to be used as the site for a new motor car factory in which 400 men will be employed. The Reo company, which sold about 300 cars so far this season, is preparing to turn out about 1,000 cars next year.

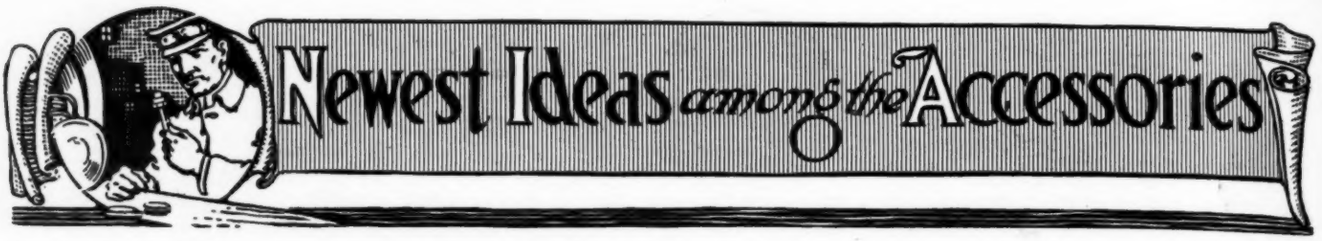
Lozier Stops Building Fours—Detroit's first motor car factory to be devoted entirely to the manufacture of six-cylinder cars is the new plant of the Lozier Motor Company, which recently celebrated the second anniversary of its establishment in that city. This announcement verifies the rumor that the Lozier had discontinued the making of four-cylinder cars.

New Truck Plant for Newark—The Atlantic Vehicle Company has been organized and has equipped a plant in Newark, N. J., for the manufacture of electric trucks made in units of 1, 2, 3 1-2 and 5 tons. McKinley Boyle, president of the Continental Car Company, Louisville, Ky., is president and Ralph S. Sanger is vice-president and sales manager. Arthur J. Slade, a well-known truck engineer, is chief engineer.

To Sell Gramms from Lima—Following a brief visit to Lima, O., by John N. Willys, it was announced that the sales department of the Gramm Motor Truck Company would not be transferred from that place to Toledo. The reason for this movement was not officially announced, but it was thought better to keep the two sales departments separated because the Overland sales department deals with stock cars, while the Gramm department deals with trucks.

Free Land for Factory—To induce the Stoddard Automobile Company to erect its new plant near Trenton, N. J., the Fashion Farm Land Company has offered to donate a $40,000 tract of land. The Stoddard company recently promised to locate a plant there if the city would donate a plant and give $60,000 toward the erection of the buildings. The Chamber of Commerce will call a meeting in the near future to raise the necessary amount to supplement the offer of the land company.

To Make New Rotary Valve Motor—The Vixen rotary valve motor, designed and built by Charles M. Mayers and Edgar C. Haupt, will be manufactured by the Vixen Motor Company, recently incorporated in Indianapolis. The officers of the company are: President, Fred C. Schmid; vice-president, William J. Harris; secretary and treasurer, C. O. Van Horn. Others interested in the company besides the designers are J. F. Morrison, D. R. Lindley, S. B. Lindley and Ralph J. Teetor.



Rear End Buffer; Bronze Flexible Tubing for Gas Leads; Spark Lighter for Acetylene Lamps; Gas Generator Self-Starter; Time-Stamp and Calculating Time Card; Comfortable Goggles of Smoked Glass

Rear Buffer for Automobiles

IT is an easy matter to prevent head-on collisions, but when the car is being backed up it will not infrequently run into objects like hydrants, etc., as shown in Fig. 5. In order to avoid breakage of tail lamps or springs the rear end buffer may be used. This device consists of a buffer bar and a pair of springs wound about two supporting arms, each of which has one end attached to the buffer bar and the other end sliding in the eye of a brace. The brace is attached to the chassis frame, and is furnished in a number of sizes to conform with the overhang of of the body over the rear end of the chassis. The device is intended for high-class cars of the touring and limousine types, and is made of steel castings, except the braces, which are of phosphor bronze. The material and workmanship of the product are guaranteed, and lost parts may be procured from the maker, the Rear End Buffer Company, 108 West Fifty-second street, New York City.

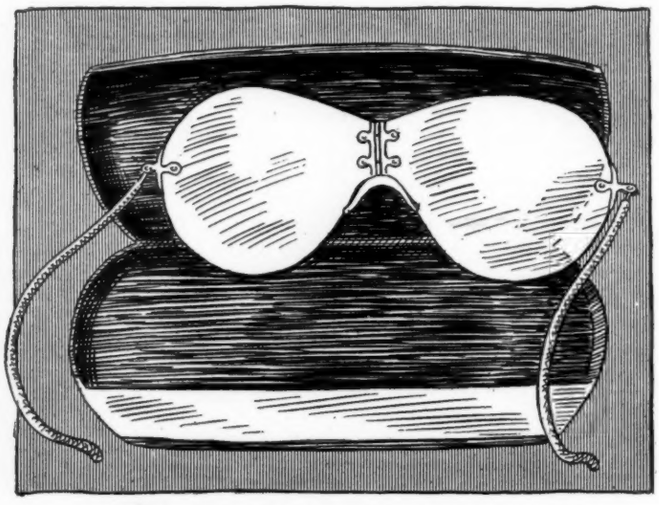


Fig. 1—Auto-Glas smoked goggles and gun-metal case

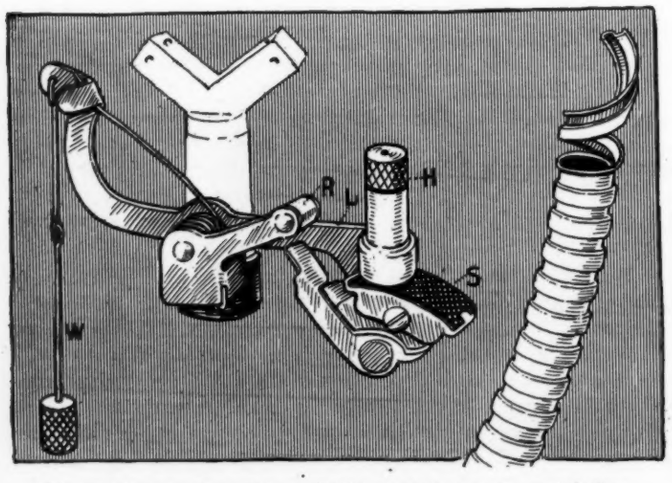


Fig. 2—Universal acetylene lighter and American metal hose

American Twisted Bronze Hose

Metal hose for various service is manufactured by the American Metal Hose Company, Waterbury, Conn. It is made of bronze and is constructed on the interlocking principle, two strips of bronze, an inner and an outer one, being twisted to form the tubing. The metal hose is furnished in foot lengths or coils, and fitted with standard or tire connections, according to the purpose it is to serve. It is illustrated in Fig. 2.

Universal Acetylene Lighter

The Universal adjustible lighter, made by the Universal Light Company, Newton, Mass., and sold by the American Lava Company, Chattanooga, Tenn., is shown in Fig. 2. This device is attached to the acetylene burner by means of a clamp, and the spark is produced by friction between a knurled steel surface S and a piece of cerium-steel alloy held against it in a holder H. The metal piece carrying the extension-roller R is attached to the clamp by means of a rod around which is wound a spring holding H and S in the relative position shown in Fig. 2. If the weight suspended by wire W is pulled, lever L carrying H and S is pulled up, and while H and S remain in frictional engagement, the roller R jerks S along the holder H containing the spark-producing alloy, so that a shower of sparks is formed adjacent to the burner and ignites the gas emerging from the same. The device is made of brass, except the steel surfaces and springs.

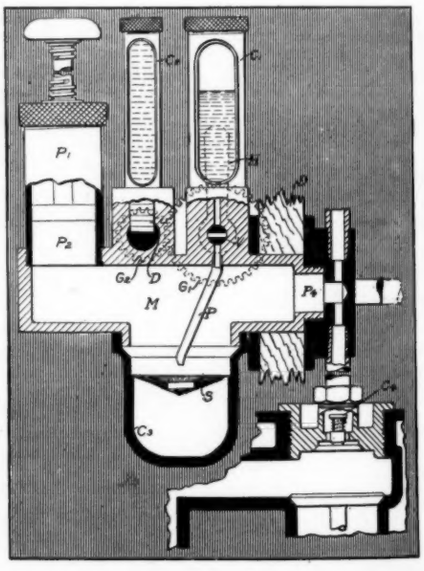


Fig. 3—Gallagher acetylene-generator starter

The Gallagher Self-Starter

An entirely new type of acetylene self-starter is being made by R. W. Gallagher, 1874 Broadway, New York City. The starter consists of carbide and water reservoirs, a mechanism for mixing proper quantities of both substances and an air pump which serves to add to the acetylene produced the air necessary for its

combustion. The entire apparatus is made of brass and is 7 inches long, 3 inches wide and 8 1-2 inches high. It is screwed to the dash with the pump nearest to the driver and at any suitable height.

The cross-sectional view of the Gallagher starter, Fig. 3, shows two cylindrical pipes C1 and C2, one of which is filled with water and the other with capsules of calcium carbide made by the manufacturer of the device. At the bottom of the cylinder C1 is a water cock, or valve, V mounted on a gear G1, while the carbide cylinder C2 ends in a drop valve D which is mounted on a gear G2 of half the diameter of G1. Gears G1 and G2 are in mesh, so that if the handle H mounted on the axis of G1 is given a quarter turn, a little water passes through V and the pipe P, after one capsule has been dropped on the strainer S by giving the handle H a quarter turn forward and back. Acetylene is thereby produced and mixed in M with air brought into it by means of the pump P1 containing piston P2. The acetylene-air mixture escapes through the pipe P4 into an extension of the same, which is tapped with connections to the cylinders. Special priming cups are inserted in the cylinder heads, these cups containing check valves C4. Before producing acteylene the pump is worked once to scavenge the dead gases in the engine cylinders. The lime formed as a by-product of the acetylene drops through the strainer and may be removed by taking off the cup C3.

The cylinders C1 and C2 are partly of brass and partly of glass, so that a look on the latter portion informs the driver whether sufficient quantities of carbide capsules and water are contained in the respective reservoirs. The capsules of calcium carbide are manufactured by the maker of the device and are sold in tins which may be carried in the toolbox or any other place on the automobile, so that there is no chance for a starter being put out of commission unless the driver permits his carbide supply to run out.

Bishop Calculating Recorder

A time stamp, in combination with a job ticket specially designed to fit the stamping mechanism and carrying a schedule for rapidly calculating the wages of a man for any length of time at various rates of payment, is the product of the Bishop Calculating Recorder Company, 111 Broadway, New York City. The time stamp shown in Fig. 4 carries a punch permanently attached to the top of the clock casing. The top of the casing also carries a guideway in which two studs S travel. These serve to hold the job card in place while being stamped. The ticket is put into the machine with the side marked *Job Ticket* up, so that the time of punching is stamped out. When the ticket has been punched again, the difference in time is figured, looked for in the first column on the reverse (schedule) side of the ticket, and followed to the right up to the column giving the wages for that time at the rate of payment of the worker.

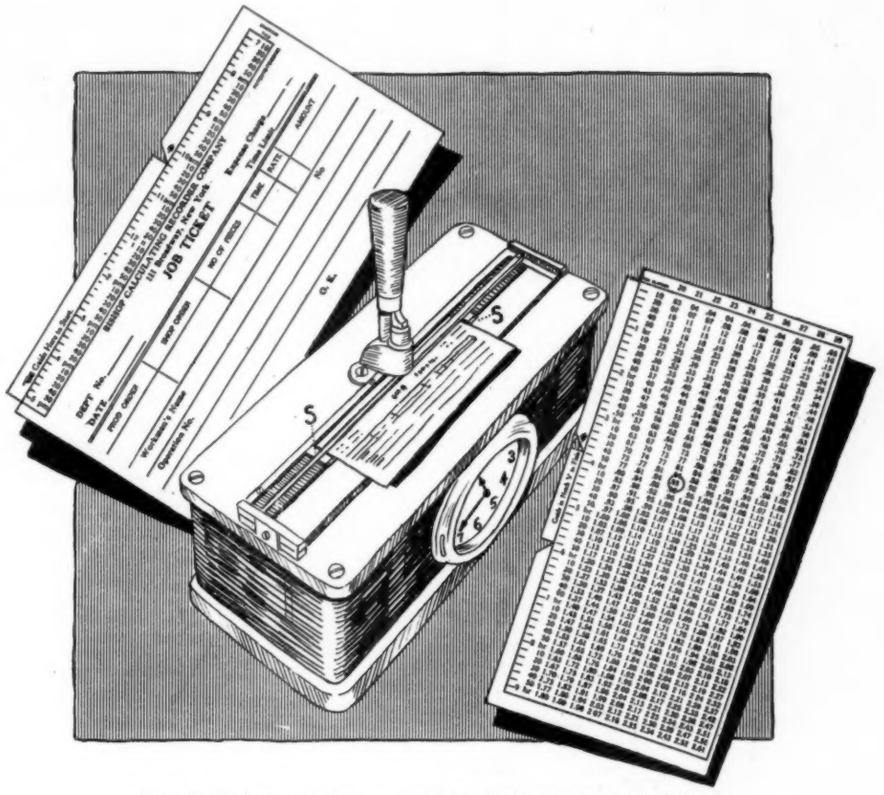


Fig. 4—Bishop calculating recorder time-stamp and job ticket

Automobile Auto-Glas Goggles

F. A. Hardy & Company, 10 South Wabash avenue, Chicago, are the manufacturers of the Auto-Glas Goggles shown in Fig. 1. This is a pair of spectacles made of smoked, dark yellow glasses large enough to cover the eyebrows and a good deal of the portion underneath the eye. The mechanism holding the glasses together is simple and adjusts itself to any position of the glasses, and the bridge is of a specially comfortable design. Special attention has been paid to the construction of the ear grips which are made of wire and incased in a rubberized and shellac-coated fabric, so that they are not felt at all when in place. The design and material of these glasses make them effective as protectors against wind, sand and glaring sunlight.

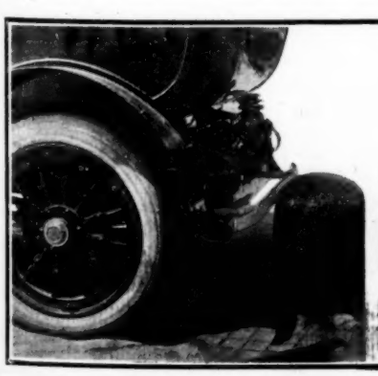


Fig. 5—Rear buffer protecting car when backing into a stone

Fig. 6—View showing the rear buffer on a car when it is not in action

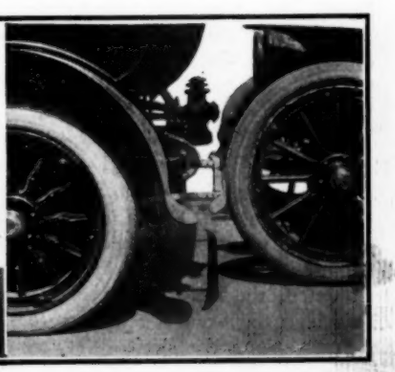


Fig. 7—How the rear buffer protects a car when run into from behind

SOLID Rubber Tire—This solid rubber tire contains many canvas corrugations to add to its strength and to prevent the tendency of the tire to become loose on the rim.

Fig. 1 shows a cross-section of a standard tire with 7 corrugations designated respectively 1, 2, 3, 4, 5, 6, 7. Each canvas

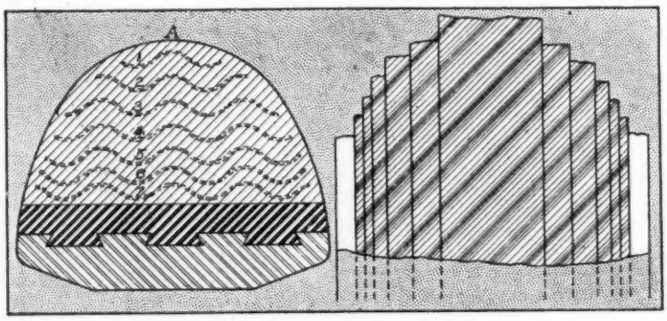


Fig. 1—Dow solid rubber tire for automobiles

corrugation is a continuous band extending circumferentially throughout the tire body. In the cross-section illustrated, the center line A of the tire passes through the crest or top point of the corrugation, but these corrugations do not occupy this same relative position throughout the circumference of the tire, being arranged so that the crests run diagonally at an angle of 45 degrees. The fabrics are closer together at the base of the tire. In the tire construction the rubber is built up with the canvas corrugations between the successive layers of rubber. The object of thus incorporating canvas corrugations with the rubber is to prevent loosening from the base and tearing apart of the rubber. The strength of the rubber, it is claimed by the patentee, is increased by the fabric, and, as these corrugations run diagonally with the circumference of the tire, they permit of both lateral and circumferential distortion when the tire is flattened by load. These corrugations, having straight line elements along their crest in hollows, could not stretch enough in that direction unless provision were made for it, which is done by laying the fabric with the diagonal of the weave in line with the crest, this giving the fabric all the necessary elasticity in that direction. The fabric can distort in every direction with the rubber without interfering with the free action of the rubber particles. The fabric also distributes the stress, due to traction and braking, carrying it over the greater portion of the rim attachment than where the rubber is used alone. This lessens the stress per square inch of attachment of the rubber to the rim, and so reduces the possibility of tearing the tire from the base.

No. 1,024,189—To Alexander Dow, New York City. Granted April 16, 1912; filed December 6, 1911.

Engine Starter—Being of the type in which a spring is wound by the engine and remains ready for starting by releasing a ratchet locking mechanism.

The mechanism, Fig. 2, of this starter comprises a shaft on which are mounted co-operating disks D, carrying collar C. The collars are connected by a member M to which a lever is connected, the latter being pivoted at a point of its length. This lever S presents a means for shifting the collars longitudinally along the shaft. Between the two disks D a spring is located which has its two ends connected to the disks, one of which may be rotated by a friction disk carried by the shaft. Ratchet means R prevent backward rotation of the last-mentioned disk, and other means serve to keep the second disk stationary while the spring is being wound through the action of the friction disk. By releasing the second disk, it is rotated by unwinding the spring and thereby rotates the shaft and starts the motor.

No. 1,024,712—to William H. Williams, Statesboro, Ga. Granted April 30, 1912; filed January 30, 1912.

Oiling System—Combined splash and force-feed system equipped with a standpipe on each end of the oil conduit connecting the oil troughs.

This patent refers to an engine crankcase which is so designed as to form a number of oil pockets which are interconnected by an equalizing conduit terminating in risers which have openings at their upper ends. These risers are spaced from the sides and ends of the crankcase compartments. A discharge outlet opens into one of the compartments adjacent to the riser and at the same level as the riser. The system also comprises a pump for circulating the oil.

No. 1,024,727—to Russell Huff, Detroit, Mich., assignor to the Packard Motor Car Company, Detroit, Mich. Granted April 30, 1912; filed July 2, 1909.

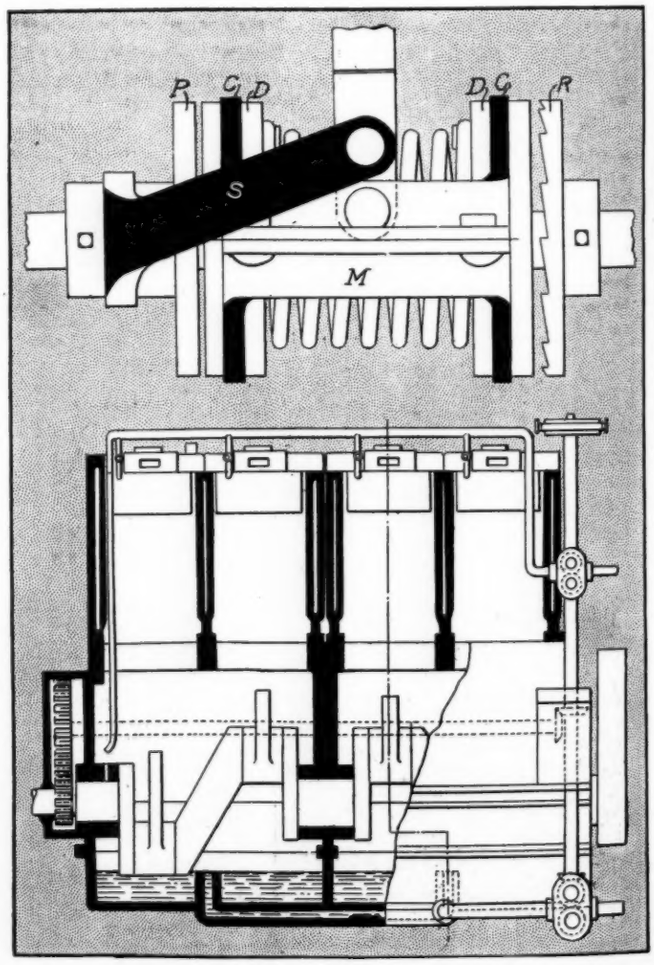


Fig. 2—Williams self-starter. Fig. 3—Huff lubricating system.